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# Mill Superintendents Meet in Philadelphia

## Eleventh Annual Convention of the American Pulp and Paper Mill Superintendents Association at the Benjamin Franklin Hotel Is Attended By Prominent Mill Men From All Over the Country and Canada and Is a Big Success in Every Respect—Representative Speakers Handle Topics of Timely Interest

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 2, 1930.—With its historical background as the cradle of the paper making industry in America the City of Brotherly Love was a fitting place in which to hold the 11th annual convention of the American Pulp and Paper Mill Superintendents Association and to entertain the helmsmen of the modern 20th Century paper making plants in the three days program which extended from May 29 to 31 inclusive and which was held at the Benjamin Franklin Hotel. Representing the progress of paper making from the primitive methods of hand work as carried on in the first American paper mill here, the old David Rittenhouse Mill, to the modern scientific and mechanical operation, this city was well chosen by the officials and executives of the Superintendents Association for the spot to expound the developments that have taken place in the industry throughout the years and to give an educational, informative and social schedule of entertainment that will be passed on in the annals of the organization as outstanding in the memory of these annual gatherings.

From the moment that the Chairman, J. Bertwell White, called the initial meeting into session there was evident the interest of the members and guests who journeyed here from all parts of the nation and from the paper making centers of Canada to participate in the many features that formed the highly appreciated program as demonstrated in the generous attendance of 520 members and associates in the trade. With true hospitality of the City of Brotherly Love the guests were kept in enthusiastic interest at the various educational sessions, during the many sight seeing trips in the city and to the surroundings of historical and business importance and in the nightly banquets and accompanying entertainments of really worthwhile vaudeville and social diversions arranged both for the members and the fair sex. Opening the program with a brief but hearty word of greeting Chairman White called the convention to order and then gave voice to a word of appreciation to the other members of the Convention General Committee for the part they had played in promoting the successful plans and for the co-operation extended. He thanked the members for their generous financial support and advised his associates to give attention to the many features of an educational nature provided for their benefit and to aid in the conduct of their supervision of the mills stating that they would "get out of the Convention just exactly what they put into it." He then presented the president of the Association, J. Garfield Ramsey, of the Jessup & Moore Paper Company, Wilmington, Del.

In an earnest and sincerely appealing address President Ramsey said:—

### President Ramsey's Message

"Our slogan for the past year has been, 'Uphold your vocation and try to gain for it the position it deserves.'

"Another year has rolled by since our last Convention. At that time we traveled to Wausau, Wisconsin, to honor our first President, The Father of our Association, Fred C. Boyce, and I believe you will all agree with me that we made a good job of it.

"At that meeting you heard D. Clark Everest, one of the real big men of our industry put his O. K. on our Association for the good we had done the industry in the past.

"You also had the pleasure of seeing Roy Kelly and his Committee overcome all obstacles to be found in a small city by pulling off one of the best, if not the best Convention our Association has ever held, and I would extend at this time the appreciation of the officers and members of our Association to them for their good work.

"At that meeting you elected me as your President, succeeding one of the finest fellows and best workers our Association has ever had in its ranks (Ben Larrabee) and I want to thank you at this time for the confidence you placed in me by giving me the highest honor that can be given to any Paper Mill Superintendent.

"I am deeply appreciative of this honor, although I have found that with it came a great responsibility and that many demands have been made upon my time and energy in attending the affairs of our Association. If these efforts have contributed in any way to the advancement of our Association, it has only been done through the wholesome cooperation of our Committees and membership. It has been my desire to continue along the lines laid down by the wonderful men who have preceded me as Presidents of our Association and I have tried to finish and keep going the good work which was started by them and which has built up our Association until it stands second to none in the paper industry.

"Along with this I have tried to reach out and bring in new members, men whom I know should be in our Association for I don't believe we should be satisfied until every Superintendent in the Paper Industry is a member of our Association and I believe you will agree with me when you hear our reports that we are fast coming to that achievement. I honestly believe that it would be a great thing for the Paper Industry if every Paper Company would see to it that their Superintendents were members of this

Association, whose one and only aim is for the betterment of our Industry.

"It has always been my belief that our Divisional meetings were the backbone of our Association and should be encouraged in every way possible, for the reason that all our members cannot get the chance to attend our National meetings and the only way we can keep every one interested is by boosting up our Divisional meetings and making them attract the men to attend. With this thought in mind I have tried to attend at least one meeting in each Division in the past year and I believe I have only missed two divisions, and these were attended by our Secretary, Bob Eminger, or first Vice-President, Carl Magnus.

"After attending these meetings I believe we must have chosen Super men for the Officers of our Divisions this year, for every meeting I attended looked like a National Convention. The programs they arranged were a credit to our Association and I know they did much to interest and instruct our membership, and every meeting had an attendance of over 100, and due to the fact that some of these were monthly meetings you can readily see the progress along this line of our work and I would take this opportunity to thank the Chairman and all others who have assisted in this good work for their cooperation and assistance in making this, one of the greatest activities of our Association, a success.

"I would also like to pay a fitting tribute at this time to K. E. Terry and his Committee for their good work on the mill service committee, all the credit for this work is due them. I did not butt in for I was sure it was in good hands.

"To Bob Eminger, our National Secretary, I cannot write words that will show my appreciation for his help to me and the Association, and after my year's work with him all I can say is that his cooperation and loyalty is something one will never forget, and I hereby personally thank him and also thank him in the name of

ANNUAL BANQUET OF THE AMERICAN PULP AND PAPER MILL SUPERINTENDENTS' ASSOCIATION

our Association for the assistance he has given us.

"Our trade paper has also contributed largely to our success in the past year, (Derb) is always on the job and on behalf of our Association I want to extend our appreciation to L. D. Post and his staff in assisting us in our activities.

"I would extend our appreciation to The American Paper and Pulp Association and the Technical Association for their cooperation with us in the past year and also personally thank President S. L. Willson and the Past President, P. H. Glatfelter, for their personal interest in our work.

"Your Convention this year, I know will be well taken care of with J. Bertwell White as Chairman and I have just one more thought to leave with you. I believe this is one of the finest bodies of men ever banded together in one Association and in these days of higher education I think it would be well to remind you that even though most of you never had the opportunity of having a college education you have made good in your vocation or you would not be able to be a member of this Association. You have made good for the reason that you have intelligence. People often possess a lot of knowledge and don't know how to use it and it does not do them a lot of good. Intelligence is your ability to adjust your thinking to the ever changing conditions and problems of life; that is you have adapted what you have, to what is needed. Intelligence is not ability to learn nor is it power of memory, nor is it the fund of information stored away in the mind. A person may be intelligent whose learning ability is very limited, and memory poor. A college education never has and never will make a man intelligent; such training helps, but unless your knowledge lends itself readily for use or is adaptable to your work, it will not promote the intelligence of the man possessing it. This explains why some men with little or no education have advanced to be leaders in industry. They may not have known much but

JAMIN FRANKLIN HOTEL, PHILADELPHIA, PA., THURSDAY EVENING, MAY 29, 1930

they were able to turn what they did know to a practical usefulness, so don't worry about missing your education, put all your thoughts in applying successfully what you have. In other words let your knowledge come out, make your thinking fluid so you can change it when you need it; always try to make it more adaptable.

"In conclusion I again thank you for the very great honor you conferred on me in making me your President. I also express my appreciation to all the Superintendents and friends who have assisted us in our Association affairs in the past year and hope you will cooperate with my successor as heartily and loyally as you have with me."

### K. E. Terry Responds To Greeting

K. E. Terry of the S. D. Warren Company, responded to the welcome given on behalf of Mayor Harry A. Mackey, of Philadelphia, and then followed the appointment of the various committees to preside at the Divisional Meetings of Friday afternoon and to nominate officers for the coming year. These were appointed chairman of the committees at the opening session of Thursday morning:—Sulphite Division, Victor E. Fishburn, C. F. Burgess Laboratories, Freeport, Ill.; Mechanical Pulp Division, F. J. Sievert, Marinette and Menominee Paper Company, Marinette, Wis.; Sulphate-Soda Pulp Division, R. J. Sprang, Champion Coated Paper Company, Canton, N. C.; Book and Fine Paper Division, Carl Magnus, Standard Paper Manufacturing Company, Richmond, Va.; and Board Division, A. W. Wickham, MacAndrews & Forbes, Camden, N. J. Carl Magnus was Chairman of the Nomination Committee.

### Boat Trip To Dupont Plant

A boat trip on the Delaware River and a program of luncheon

CARL MAGNUS
President

and dancing followed by a tour of the plant of the DuPont Company in Wilmington, Del., occupied the time of the members and the ladies on Thursday afternoon. Arriving at Carney's Point private automobiles conveyed the visitors to the DuPont plant where an inspection of the Experimental Color Laboratories was a practical education in color chemistry to the group. From the DuPont plant there was a tour of the Pusey & Jones Company, paper making machinery manufacturers. J. Carl Schmidt, of the DuPont Company accompanied the visitors over the plant. On the homeward voyage there was another program of dancing and musical entertainment, with a game of Monte Carlo for those who desired to tempt fortune for the awards given lucky winners in the men's and women's contests. These were the winners of prizes in the women's class:—Mrs. M. P. Northam, Mrs. J. A. Ingram, Miss F. C. Farnsworth, Mrs. J. A. Cameron, Mrs. F. E. Terry, Mrs.Dowling, Mrs. Charles L. Ellis, Mrs. Thomas Ireland, Mrs. E. F. Thru and Mrs. F. J. Rooney, while the men's trophies went to D. M. Kelly, H. A. Horstmann, D. D. Pillar, A. B. Drew, W. S. Friedrich, E. P. Argy, Carol Wentz, R. W. Holden, E. P. Stahl and R. Lewis.

### Thursday's Discussion On White Water System

While there was scheduled for the Thursday morning session two papers to be read in the educational program only one of these was available owing to lack of time—the paper on "The Closed White Water System" by C. M. Baker, engineer, American Paper

ROY H. KELLY
1st Vice President

and Pulp Association, being discussed and expounded by members in open forum after its perusal, by the author. Mr. Baker reviewed his subject of white water as it is put to use in various kinds of paper making plants stating results accomplished by white water utilization and the systems in operation in the book paper, board, news print, kraft and tissue mills, going into details of showers and slime control and other difficulties and offering the key of solution in practical application to the needs of the manufacturers.

### Friday Morning Sessions

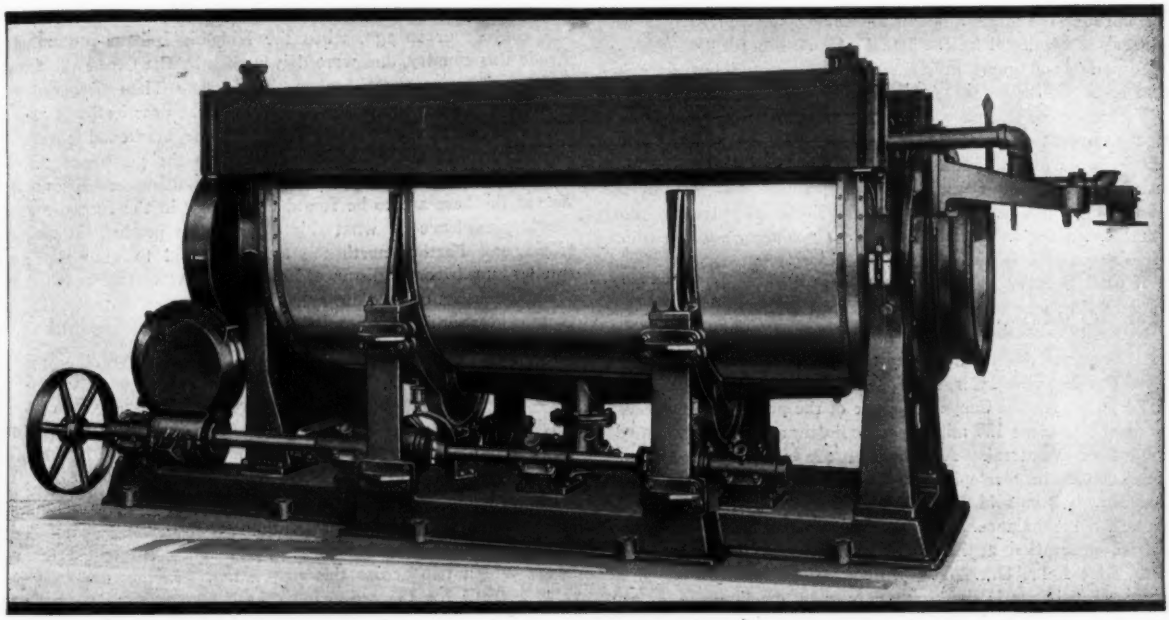
Opening the Friday morning meeting, Walter Davies, Engineer of the E. P. Houghton Company, Philadelphia, carried his audience over the ground of leather belting manufacture from the source of the raw hides in the Swiss Republic to the treating and final conversion of the hides into the Vim Leather Belts as they are turned out by his firm. "Heat and Power Problems with High Pressure Steam in Pulp and Paper Mills" was the topic handled by W. R. Crute, engineer of the Champion Fibre Company, Canton, N. C., in which he gave elucidating information on power control and its use in the factors of paper making. Moving picture exploitation of the electrical speed regulator and its usefulness in paper mill equipment control was interspersed with information on motorization in the lecture of R. R. Baker, of the engineering staff of the Westinghouse Electrical Manufacturing Company, entitled, "A New Speed Regulator for Section Paper Machine Drive." The Westinghouse carbon pile speed regulator assembly, showing the synchronous motor, cone pulley, differential housing and enclosed panel control was dissected and revealed in its mechanical construction for the benefit of the superintendents while Mr. Baker gave explanation of the parts so shown in slides demonstrating operation of the motors in the mills.

### Election Of Officers

Just before adjournment of the Friday morning meeting there was held the annual election of officers and announcement made

*(Continued on page 60)*

# What would BIRD SCREENS mean in your mill? . . . .



For many mills, Bird Screens mean tremendous capacity.

For many others, Bird Screens mean superior quality stock.

For all mills, Bird Screens mean trouble-free performance at the lowest cost per ton.

Let us show you how Bird Screens fit the requirements of your mill.

BIRD MACHINERY

BIRD MACHINE COMPANY

SOUTH WALPOLE ◆ MASSACHUSETTS

4082

# Abitibi to Proceed With New Power Project

## Company Plans to Spend Approximately $25,000,000 In Developing 275,000 H. P. At Abitibi Canyon On Hudson Bay Watershed—Power Brought Down Will Be Used for Steam Generation At the Iroquois Falls and Smooth Rocks Falls, Ont., Plants

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 2, 1930.—All the pulp and paper concerns in Canada are more or less intimately connected with hydro-electric enterprises, and of late years some of the larger of them have been branching out into the power business as subsidiary enterprises, holding the view that the generation and sale of hydro-electric power gives a solid basis to the paper industry, which of itself fluctuates between fat and lean times as regards revenue.

The latest company to branch out on a large scale in power development is the Abitibi Power and Paper Company, which was originated in Montreal by the late F. H. Anson for the development of pulpwood limits in Northern Ontario, and has since become a leader in the news print industry in that province. Recently the company organized a subsidiary, the Hudson's Bay Power Company, Ltd., to develop power at a site on the Abitibi River, which flows north into James Bay. Last week the company took a party of guests, of which your correspondent was one, to the site of the proposed development, and the trip proved a most instructive one, not only as showing the outstanding position which the company holds in the region lying immediately north of the district made famous by the mineral fields of Cobalt, Porcupine, and Ruyon, but also as showing the industrial possibilities of the vast northern area which drains into Hudson Bay.

The site of the Abitibi Company's parent mill, the 600-ton news print mill at Iroquois Falls, is approximately 450 miles due north from Toronto. Abitibi Canyon, the site of the proposed new power development, is some 120 miles farther north, and it lies 650 miles northwest of Montreal. At this site the company will spend some $25,000,000 in developing 275,000 h.p. Of this a block of 100,000 has already been sold to the Hydro-Electric Power Commission of Ontario; the balance is to be used by the Abitibi Company for steam generation at its plants at Iroquois Falls, Ont., and Smooth Rock Falls, Ont. The project is additionally interesting from the fact that it is the first really large development on the Hudson Bay watershed, and that when completed the power brought down will be the first carried south of the Height of Land from rivers following north.

To get to the site of the development one has to go beyond the confines of civilization to a region where the only trails are those cut through the bush to get to it, supplemented by the hard-packed immemorial trails of the Indians. The jumping off place is Cochrane, and convenient access to the region for most of the way is provided by the railroad now under construction by the Ontario Government from that place to Moose Factory, on James Bay, the lower extension of Hudson Bay. The distance from Cochrane to Moose Factory is 150 miles, and already steel has been laid for about 100 miles. The line is to be completed next year, and then for the first time in history Ontario will be able to boast of a seaport.

The party left the railway at mileage 70, where on the edge of the unbroken forest guides were in waiting to conduct them over a trail of some four miles to the camp at the edge of the Canyon. This part of the journey had to be done on foot, every man for himself, wearing the high-legged boots of the northern pioneers, and finding them not at all a superfluous precaution as he threaded his way with more or less skill and agility through the muskegs. That the party made good time and arrived without mishap and undue fatigue was a tribute alike to their physical stamina and to the bracing air of the north.

To the visitors it was a surprise to find that the Hudson Bay watershed is by no means the frozen, barren land that imagination had pictured it. It is part of an immense clay belt, and is for the most part covered with a heavy stand of white spruce, interspersed with black spruce, tamarac, and various kinds of hardwood. The tamaracs already have their leaves, and the hardwoods are breaking into leaf, vegetation on the whole being only about ten days behind that of Montreal. The size of the trees was another surprise.

A century or so ago, when the Iroquois Indians attempted to invade this country, and were driven back by the Crees, the former were said to have set fire to the forest. Then occurred "the great burn" when the northern forests were practically destroyed. Evidences of this are to be found in the blackened stumps of large trees still to be found preserved in the muskegs. All the same, here and there white spruce with a diameter of some two feet at the base are to be found flourishing in the forest, and are standing evidence of what this country can produce in the way of timber. Farther north the trees are said to gradually grow smaller until some distance before salt water is reached the country consists of desolate mud flats. Here and there around the Canyon a seagull flying over the water suggests that the sea is not far away.

There is no spectacular waterfall at the Canyon. The water rushes down over a series of rapids—the Lobstick, Burntwood, Clay, Birch and Oil Can Rapids, as they are respectively called. By building a dam across the Canyon, a total head of 240 feet will be obtained, permitting a development of 275,000 h.p.

Engineers have been on the site for about a year making the necessary surveys, and at present they are the only people there. They have built a bridge across the Canyon, suspended on wire cables, and a trip across this palpitating, swaying structure provides a thrill for the tenderfoot.

The development is to be proceeded with immediately, and will be completed by 1933. On the very day when the party reached the camp, the sound of the axe men was heard cutting the last few hundred yards of a clearing to the camp site for the spur track which is to run in from the railroad. Steel is to be laid with all possible expedition. Meanwhile clearing is to go ahead of the site for the town which is to accommodate some 2,000 laborers. A complete town, with a fire brigade, water supply, sewerage, and all the other appurtenances of civilization will before summer is well advanced occupy a place where from time immemorial there has been unbroken forest.

Thus while the Prairies are advancing their out posts to the north by the Hudson Bay Railroad from the Pas to Churchill, civilization is pushing relentlessly to the north in Ontario, and soon both the prairies and Ontario will be able to boast that nothing but the northern sea puts a limit to their industrial expansion.

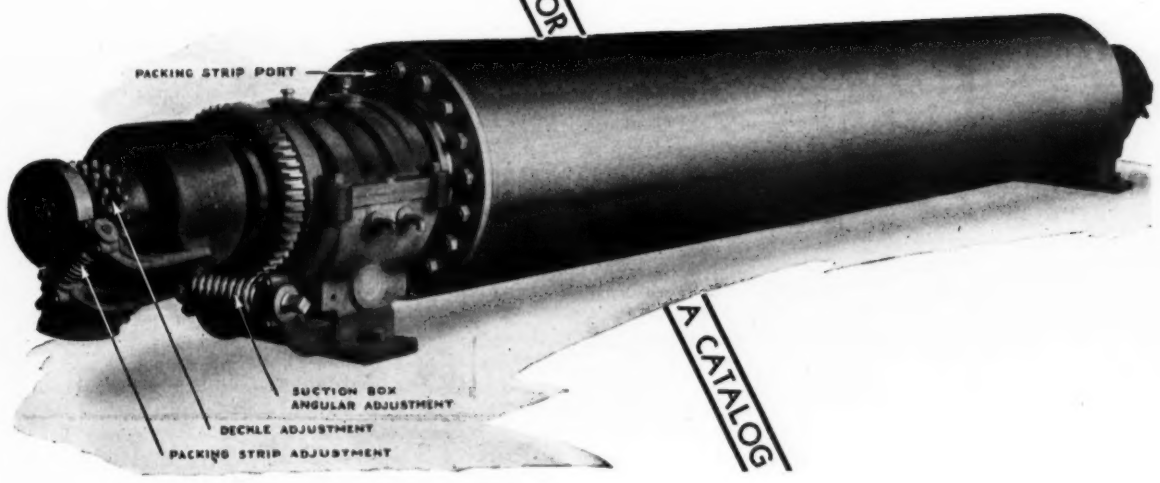
It is interesting to note that when this development is completed the companies consolidated in the Abitibi Power and Paper Company will have a total development of approximately half a million horse power, as compared with 25,000 h.p. which the Abitibi company had in 1914. The company now has nine mills, with a total capacity of 2,200 tons of news print daily, 225 tons of bleached sulphite, 65 tons of board and wrapping paper, and 150 tons of news sulphite.

WRITE YOUR NAME AND ADDRESS ON THE MARGIN OF THIS PAGE AND MAIL IT TO US FOR A CATALOG

A certain newsprint mill added 8 tons to the daily production of one machine, solely because of the installation of Downingtown Suction Rolls. This installation has increased the life of the wires and felts and the company has since equipped two other machines with Downingtown Suction Couch and Press Rolls. The design and construction of the Downingtown Roll materially contributed to this production increase, which was derived from the suction roll operating principle. New catalog, sent on request.

DOWNINGTON KILBERRY PATENT SUCTION ROLL

Downingtown Manufacturing Co.
Downingtown, Pa., U. S. A.



# Chicago Paper Market Exhibits Steady Trend

## Fine Paper Section Firmer, Due to Better Demand, With Future Prospects Promising — Coarse Paper Division's Irregularity Attributed to Unsatisfactory Kraft Price Situation —Distinct Improvement Experienced In News Print Industry

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 2, 1930.—Paper merchants and manufacturer's representatives in the Chicago area are looking confidently for an improved period of business before the so-called summer slump definitely arrives. Here and there various lines are spurting up as the retail business shows some signs of awakening. Business men now seem to be of the opinion that it is the sellers and not the buyers who are making things somewhat slow. Several paper houses report large orders after they had decided that business is not so bad and worth going after.

The news print market is steadily improving as advertising appropriations increase. The fine paper market has firmed up during the past week in response to better retail demand and the outlook for the near future is said to be rather promising. With the single exception of price the board market is rapidly approaching normalcy. Supply and demand are reported favorable. The wrapping paper market is spotty—sluggish retail demand and the general condition of the kraft market making for this unevenness. Book is slightly improved though irregular. In the waste market the higher grades are more active, with the lower grades more or less marking time, according to reports.

### Chicago Paper Merchants Plan Banquet

The Chicago Paper Association is planning a big special dinner meeting in honor of the presence in Chicago of Frank Floyd, secretary of the National Paper Trade Association, and Arthur Blackman, of the D. F. Munroe Paper Company, Boston. In arranging the meeting the Chicago Paper Association, according to D. F. Peck, president, took advantage of the visit of these two men to the Chicago territory. They are returning from an extended tour which took them to the Pacific Coast and back. On this journey Mr. Floyd and Mr. Blackman visited the trade associations en route. The regular June 10 meeting of the association will be held on June 2, at which time members and guests will have an opportunity to hear these two men.

The meeting, at which more than fifty paper merchants and their guests will be present, is slated for Monday evening, June 2, 6:30 p.m., at the Bismarck Hotel. Leo Altholz, of the Inlander Steindler Paper Company, and chairman of the board of the Chicago Paper Association, will act as toastmaster for the occasion. Mr. Altholz is also president of the Middle States Wrapping Paper Association. According to Mr. Peck the entire meeting will be given over to the remarks of Mr. Floyd and Mr. Blackman. The entire association is much interested in the extensive report they will have to make following their trip over such an extended area.

### News of the Trade

The May issue of the "Container," house organ of the Container Corporation of America, indicates that this publication is getting to be more and more of a genuine aid to the building up of container sales and personnel development. Edited by J. P. Brunt and P. J. Volgan, this issue contains some excellent editorials with an especially interesting story written by H. Harban, sales manager of the Folding Carton Division in Chicago on "Special Folding Display Cartons—A Sales Opportunity." "This and That from Office, Mill and Factory" contains many personal items dealing with employees of the big company. Salesmen's tonnage standing is also given a prominent position in the book. All in all, the 36 pages provide an excellent example of what can be done in bringing a big corporation into one fairly intimate family.

You place an order with the Chicago Paper Company, no matter how small, and you get, in return, a personal letter from the treasurer that expresses pleasure in opening the account, extends to the new customer the full services of the organization and then adds, "we believe you will find our line complete and as our aim is to give entire satisfaction to our customers, we hope to merit your continued favors." Perhaps many other paper houses follow the same splendid program. The letter, as written, certainly is an effective way of making new friends.

We note from the May, 1930, advertising expenditures in national general magazines that paper and paper products are mentioned in no classifications whatsoever. Office equipment firms spent nearly $300,000 in these publications and stationery and book firms spent $408,228. Included in the general lists are many industries advertising their entire industry in the hope of stimulating consumer demand. Our attention was called to this classification by a Chicago paper jobber who wondered "when the paper industry would use national circulation to tell of the many uses of paper, build up a big consumer demand and strongly entrench the paper industry in its place as a rightful leader in the business of the nation."

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### Good Progress on Shawinigan's Project

Although the news print industry, which is its largest customer, is at present going through difficult times, the Shawinigan Water and Power Company is going ahead full speed with its big program of power development on the St. Maurice river. This development calls for more than 1,250,000 additional h.p. to be developed. The first of the six power developments embraced in the program is at Rapide Blanc. This undertaking involves a continuation of the high tension wire erected last summer between Grandmere and La Tuque. The Rapide Blanc development will give 160,000 h.p., and the construction work is now under way. Instead of the usual spur track into the site for the carrying of the supplies, the company has made a new departure by undertaking to build a ten-mile concrete road, over which supplies will be carried from the railroad to the camp by motor trucks. The road is expected to be completed by the fall. At the Toro Rapids 400 men are engaged on the construction of a dam which will impound 33 billion feet of water. This dam will have an important bearing on the Rapide Blanc development and it will be completed in 1931. The dam will also permit the installation of additional units at Grandmere and La Gabelle of 25,000 and 30,000 h.p. respectively.

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### News Print Report To Be Made Soon

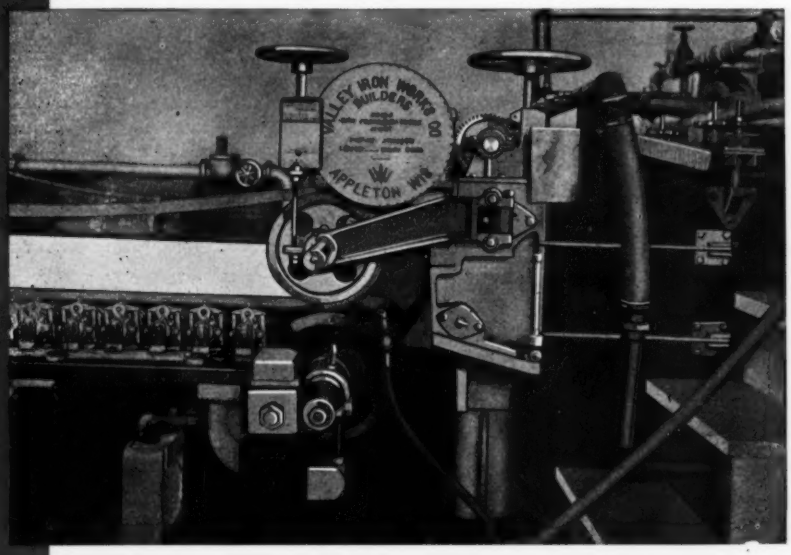
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 4, 1930.—The Federal Trade Commission has announced officially that "a report covering the Commission's investigation of news print paper is in an advanced stage of preparation and may be sent to Congress prior to adjournment of that body. The Commission has for consideration a tentative draft of the report."

Through the news print paper inquiry the Commission seeks to learn "whether any of the practices of the manufacturers and distributors of news print paper tend to create a monopoly in the supplying of news print paper to publishers of small daily and weekly newspapers or constitute a violation of the antitrust laws."

Field work has been in progress in different parts of the country since the Commission began the inquiry in March of last year.

# LOW SPEED or HIGH SPEED




*186 installations now in daily operation in 140 progressive mills in United States and Canada.*

# HEAVY STOCK or LIGHT STOCK

**Do you know that now—through new features of construction—the Voith Inlet offers you all of the advantages of operation on heavy papers at slow speeds that it does on lighter papers at high speeds?**

**Do you know that you can change deckles while the machine is running . . . that one man can accurately control the orifice opening in front of distributing roll . . . that wires are given longer life . . . that formation is decidedly better . . . and that you can have better control of weight uniformity?**

**All these things—and others which we lack space to mention here—go together to provide the vastly superior, all-around efficiency and finer quality which you can expect to get from the Voith Inlet.**

**Address your inquiry to the Valley Iron Works Co., Appleton, Wisconsin.**

# VALLEY

## Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Western Mfg. & Sales Div.: Smith & Valley Iron Works Co., Portland, Ore.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

# Demand for Paper Moderately Active in Boston

## Fine Paper Market Reported Busier In Some Quarters—Kraft Paper Price Decline Said To Be Affecting Dealers Profits—More Inquiry Experienced for Box Board With Future Outlook Favorable—Quotations Remain Practically Unchanged

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 2, 1930—Fair demand for both fine and wrapping paper prevails in this market. Some dealers report more activity in fine papers, while others say that the market is rather dull. In kraft the price situation is disturbing. No. 1 kraft has gone down to .04½ as a low, with the maximum quotation at .05¾. Dealers complain that these low prices affect their profits. Box board is quiet, although there is more inquiry and the outlook appears favorable. Quotations are practically unchanged.

### Paper Stock Unsatisfactory

Paper stock remains unsatisfactory, with prices at low levels, as a rule. Low grade commodities appear to be as far down in price as they can go. It is said in the trade that one cannot get a new dollar for an old one in the present situation and that there is no profit for the dealer. A number of distressed lots of old rags are on the market. The bagging market, however, is in better shape. Foreign gunny bagging is firm at 1.75, Atlantic ports.

There is a tendency toward lower prices on book stock and ledgers. Foreign dark cottons continue very weak. At best the paper stock demand is hand-to-mouth and one dealer intimates that the present situation will result in "a survival of the fittest." Demand for twine is fair, with prices holding at about the same levels.

### Paper Merchants Outing Program

The regular June meeting and summer outing of the Boston Paper Trade Association is to be held at the Charles River Country Club, Newton Centre, Mass., on the tenth, and as usual, an interesting program has been arranged. The attractions include "A New Game" with everyone, "Rolling Their Own," "Paper Men in Tears" on account of "Ringer Salesmen," "Untangling the Twine Situation," "Manufacturers Taking the Rap from Merchants," Buffet Lunch at Club House," and "Meeting and Presentation of Prizes." The committee is composed of Herbert C. Ham, chairman, R. F. Chapin, W. J. McClellan, Nathan S. Clark, John H. Brewer, Willard H. Loud, Fred W. Main and T. Charles Casey.

There will be an opportunity for all to play the golf course throughout the day, tournament players having the right of way. The golf committee consists of E. D. Bement, chairman, Norman Harrower, W. E. Porter, Jr., W. L. Muzzy, Wm. N. Stetson, Jr., Jesse G. Swift, and F. B. Cummings. Tennis courts are available all day. There is to be "an honest-to-goodness" game of "Pitching Horse Shoes," genuine ones too, that may have came from "Maud S" or possibly Earle Sande's mount "Gallant Fox." Much enthusiasm will probably be shown in the base ball game between the manufacturers and merchants. Applications for membership will be voted on at the business meeting. The officers of the association are Albert R. Smith, president; Charles A. Esty, first vice president; Frank B. Cummings, second vice president; Thomas H. Casey, treasurer; F. Bendel Tracy, secretary.

In celebration of the 135th anniversary of Bird & Son, Inc., East Walpole, Mass., and as the company's contribution to the Tercentenary program, the 140-foot blimp Neponset has begun a six-months tour of New England. The dirigible will hover over many New England cities this summer as Tercentenary exercises are held. The blimp, officially called the NC-13A, was built by the Goodyear plant and flew from Akron, Ohio, to the Round Hills flying field, attracting much attention on the way. At the dedication at Walpole, Wednesday, President P. R. Allen was master of ceremonies. The speakers were Mrs. Charles Sumner Bird, President Arthur G. Wadsworth, of the New England Airship Corporation, and Pilot James H. Sheppard. Charles S. Bird, Jr., and the president were among the first to go up. Others who enjoyed rides were vice-president George R. Wyman and J. H. Maguire and Dan Jones, 48 years and 50 years respectively with the Bird company. Mrs. Wadsworth, wife of the president of the airship company, christened the dirigible with a bottle of water from the Neponset river, which had been used in the Bird manufacturing process. A number identified with some of the New England fairs have asked for the dirigible at the time these annual events are held.

### Correction

It was erroneously stated on page 66 of the May 22 issue of the PAPER TRADE JOURNAL that the inserts in the magazine "Fortune" were printed on Magazine Coated, a product of the Oxford Paper Company, Rumford, Me. The insert paper in this magazine is the Fortune Wild Text Wove, sold to the publication by Bulkley, Dunton & Co., New York City, and manufactured by Curtis & Bro. Co. of Newark, Del. The coated paper of the magazine, also supplied by Bulkley, Dunton & Co., is made by the Maine Coated Division of the Oxford Paper Company, Rumford, Me. The work is a remarkable demonstration of fine printing.

### News of the Trade

April was the best month the Globe Paper Company ever had. This company has taken on the agency for Cloudweave and Italian Pressed, both direct-mail pieces made by the Hamilton Paper Company, of William Penn Postoffice, Pa., and is also handling new lines, Hutone Cover and Text, made by the Peninsula Paper Company, Ypsilanti, Mich., and the Ticonderoga line of book papers, made by the Ticonderoga Pulp and Paper Company, Ticonderoga, N. Y.

Harold Peckman, a promotion man of the Hammermill Paper Company, Erie, Pa., gave a talk to Boston salesmen of Storrs & Bement Company and to salesmen of Carter, Rice & Co. Corp. Thursday and Saturday mornings respectively on the 1930 sales program of the Hammermill company.

Ernest L. Johnson, of the S. D. Warren Company, was elected vice president of the Advertising Club of Boston at a meeting of the organization May 28.

F. Bendel Tracy, president and treasurer of the Fort Hill Paper Company, has gone on a combined business and pleasure trip to the Pacific Coast, accompanied by Mrs. Tracy, expecting to return in July.

R. F. Chapin, representative of Miller's Falls Paper Company, Millers Falls, Mass., and E. J. Keller, president of E. J. Keller Company, paper makers' supplies, 200 Fifth Avenue, New York City, called on the trade last week.

Franklin F. Spaulding, president of Spaulding & Tewksbury Company, box board dealers, left today for a business trip to New York and Philadelphia, expecting to be away about a week.

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### Goes With Howard Paper Co.

BOSTON, Mass., June 2, 1930.—William J. Bigley has severed his connection with the Casey Bigley Company and has become associated with the Howard Paper Company, the change taking effect today.

# WALDRON

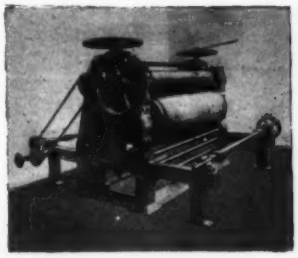
## EMBOSSING MACHINES *and* PAPER ROLLS

The long wearing quality and exceptional character of work being secured from Waldron Paper Rolls is due to the fact that Waldron Rolls are designed and built by the same organization that designs and builds the famous Waldron Embossing Machines. This complete understanding of machine requirements as well as roll requirements insures an extra measure of dependable quality and precision in either machine or roll that is built by Waldron.

A comparison on the basis of utilization cost will prove the added value in Waldron rolls. A comparison on the basis of production costs and character of embossing secured will explain the investment value of Waldron Embossing Machines. Our booklet will give you full information on our complete line of machines and rolls.

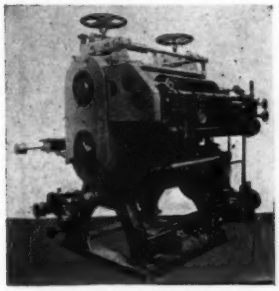
*Write for your copy of*

"HOW A PAPER ROLL SHOULD BE RUN IN"—a very helpful instruction card that you may have without obligation.



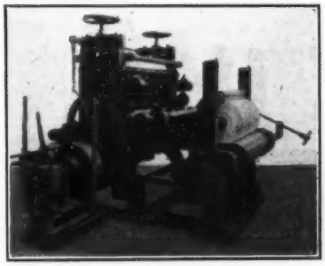
"CENTENNIAL" EMBOSSING MACHINE

Latest model open front type with extra rugged frame arranged for quick removal of rolls without removing box.



HEAVY DUTY EMBOSSING MACHINE

One of the many types of Waldron heavy duty Embossing Machines. Equipped with inking attachment, special roller bearings and Waldron automatic stop to prevent marking paper roll. Complete with unwinding stand, rewinding stand and quick lifting rig.



SUPER-SPEED HEAVY DUTY EMBOSSING MACHINE

Subject only to the kind of goods, this embosser operates up to 500 feet per minute. Equipped with large diameter steel and paper rolls, quick lifting rig, automatic stop, slitters, trimmers, and double drum winder which provides for a solid yet straight bundle. Handles goods 36 inches wide.

**JOHN WALDRON CORPORATION**

*MAIN OFFICE AND WORKS NEW BRUNSWICK, N. J.*

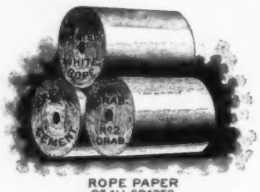
201 North Wells Street
CHICAGO

122 East 42nd Street
NEW YORK

311 Lewis Building
PORTLAND, ORE.

# THIS LETTER TELLS WHY

M.A. THOMAS, Pres't. H.L. BROOKS, Vice Pres't. E.C. WOODWARD, Sec'y & Treas.



ROPE PAPER OF ALL GRADES.

THE WARDLOW-THOMAS PAPER CO.

MANUFACTURERS OF

ROPE & MANILLA PAPERS.

Middletown, O. November 7, 1929.

Penberthy Injector Co.,
Detroit, Mich.

Gentlemen:-

Attention: Mr. G. E. Norton.

We are in receipt of your letter of Nov. 2nd. addressed to attention of Tom O'Flynn. The writer wishes to personally answer this communication as there are some things which I wish to state at this time that I prefer to have over my own signature.

The Penberthy installation on our No. 1 Machine has been completed and the result obtained from this equipment is very gratifying. The writer feels that it is producing very close to 100% efficiency. After the installation of the combination pressure and vacuum gauges, the result shown is as follows:

Average vacuum in heater line ranging from zero to 5".
Pressure in dryers ranging from 1" vacuum to 2½# pressure.
Dryers at wet end of machine cold, and operating as the writer feels they should operate.
Paper coming from the machine entirely satisfactory.

Since the completion of this equipment, we have run both extremes of our production, drying the largest and smallest tonnages which we make, equal satisfaction having been obtained in both directions, therefore it would be impossible for us to over-praise the equipment which you have installed for us.

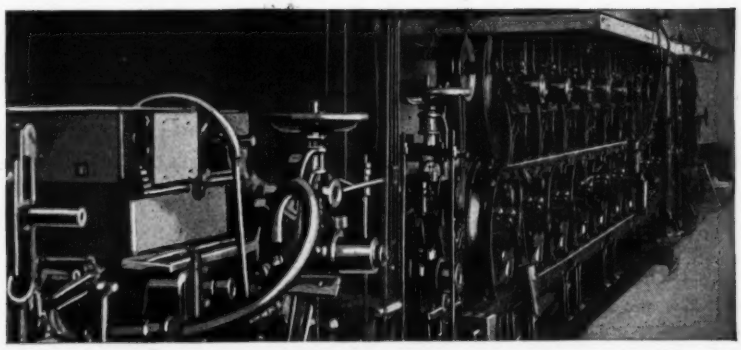
The question now arises, is it possible to get an equally satisfactory result on our other machine? We would be pleased to have your representative call at his earliest convenience giving us quotation and lay-out for this machine which contains 17 drying units. Please advise by wire when it will be convenient to see the writer as he expects to leave town on next Tuesday.

Yours very truly,

THE WARDLOW-THOMAS PAPER COMPANY.

H L Brooks V.P.

# PENBERTHY PAPER



# THE SECOND MACHINE AT WARDLOW-THOMAS NOW ALSO HAS PENBERTHY DRIER EQUIPMENT

PENBERTHY PRODUCTS

THE letter reproduced at the left refers to the Penberthy Drier Equipment installed on the first machine at Wardlow-Thomas, a 32 drier vertical machine. It warrants careful reading by everyone interested in improving the quality of his sheet and reducing its cost.

Although Mr. Brooks states that the Penberthy Equipment is operating close to 100% efficiency, he does not specifically mention the saving in steam. Before the installation of the Penberthy Drier Equipment, steam was bled from four nozzles of the turbine—after installation only one nozzle was used.

This is not an isolated case but is typical of improvements and economies effected by Penberthy Drier Equipment on machines making all kinds of paper.

Penberthy Drier Equipment can now be purchased from the savings it is guaranteed to make; no capital investment need be made. Three purchase plans are available. Wire or write for detailed information.

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

# DRIER EQUIPMENT

# Ontario Paper Manufacturers Fairly Active

## Satisfactory Conditions Experienced In Fine Paper Mills, Considering General Trade Depression, With Some Business Booked Ahead—Toronto Distributors Experienced Improved Demand During May Compared With Preceding Month's Returns

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 1, 1930—The month has closed with a fair record of business to the credit of the wholesale paper trade in Toronto and district considering the adverse business conditions that have prevailed throughout the spring months. It is true that the volume of turnover has not been large but it showed an improvement on the preceding month and it begins to look as if the paper trade were headed for better things. Both the manufacturing and distributing ends of the paper industry acknowledge that business is hard to get and while there has been a fair amount of activity among the mills, with some business booked ahead in the fine paper field, the wholesalers have been more or less quiet for weeks. The month just closed, however, produced slightly more business than was anticipated would be the case and it was largely due to greater sales efforts and to the tapping of sources hitherto allowed to lie dormant. If the wholesalers can maintain present progress of improvement through the coming summer holiday period it would seem as if the fall would produce really good business. That is the season slated for a return to normal business conditions in commercial lines generally and it is believed that the paper trade will be among the first to respond to the expected new order of things. In the meantime the trade is congratulating itself on having fared so well under adverse trade conditions and if it can now get volume out of individual sales instead of small lots it will be in first class shape. The trade generally feels that this condition is rapidly on the way and should swing in as fall sets in.

### Printers Doing Fair Business

There has been a distinct improvement in the printing trade with a corresponding increase in requisitions for paper. Most of the larger printing and lithographing firms in Toronto are quite busy and enquiry at the office of the Toronto Typothetae elicits the information that there are fewer men enquiring for work than has been the case in several weeks. It is learned that the employing printers' organization are complaining of the practice of some paper houses in not checking up closely enough on the credit extended some printing firms on their paper accounts, which has had a detrimental effect on both the paper and printing trades. The matter is likely to be taken up by committees from the two bodies.

### Wirebound Had a Good Year

On April 30 the latest fiscal year of Canadian Wirebound Boxes, makers of paper boxes as well as wirebound lines, was brought to a conclusion In the twelve months the company experienced a distinct improvement in its business and was not bothered with the price cutting practices that made things so trying in the corrugated paper box business in Ontario. The company specializes in the manufacture of paper and wirebound boxes of all kinds and produces libes applicable to a wide variety of uses. The management reports that the upset conditions in business in the last half of the fiscal year were, in some respects, helpful, because a number of manufacturers and shippers availed themselves of the economies possible through the use of wirebound boxes. The result was that the company gained some important new customers. The inventory has been taken but the work of drafting the annual report is only now under way and it is still too early to forecast the showing. Earnings per share on the stock are expected to show an improvement as compared with the previous year. The company has not yet gone ahead with its English development. The management has made some very careful studies of the overseas situation that would be applicable to such a British branch factory, but no definite move has yet been taken in the matter. It is intimated, however, that the whole idea is very much alive and some definite word as to plans is expected shortly.

### May Revolutionize Paper Manufacture

Ontario paper manufacturers were deeply interested in the announcement of Dr. Harold Hibbert, in charge of the scientific work on pulp and paper chemistry in the Canadian Pulp and Paper Institute, made before the Canadian Chemical Convention, that artificial silk can be made from carbon dioxide gas obtained from burning coal, and water. The discovery was described as most important in the field of chemical research work. Dr. Hibbert's work in connection with the discovery was the finding of a method for making cellulose from sugar. To Dr. E. C. C. Bailey of Liverpool University, England, goes credit for making a sugar by mixing carbon dioxide and water. The discovery would appear to be the first step toward realization of the belief of Dr. L. Levinson, former president of the British Society of Chemical Industry, and world-renowned chemist, who recently predicted that before many years it would be possible to make cotton, paper and artificial silk without the use of cotton plant or the spruce tree.

Dr. Hibbert explained to the gathering a method by which the sugar from plant life would be converted into cellulose, principal constituent of wood and paper, from which artificial silk is made. He outlined the manner in which plant life is able to produce cotton and wood from carbon dioxide and water of the atmosphere. The plant forms a sugar from these units and the more difficult step was the discovery of the method of converting these sugars and other natural plant products. After years of experimenting this step was brought about by adding a common bacteria to the sugar. The discovery means also that it is possible to take ordinary cane or other sugar and convert it into cellulose from which artificial silk and other materials are made. It was still too early to predict as to the industrial and commercial possibilities of the discovery he said.

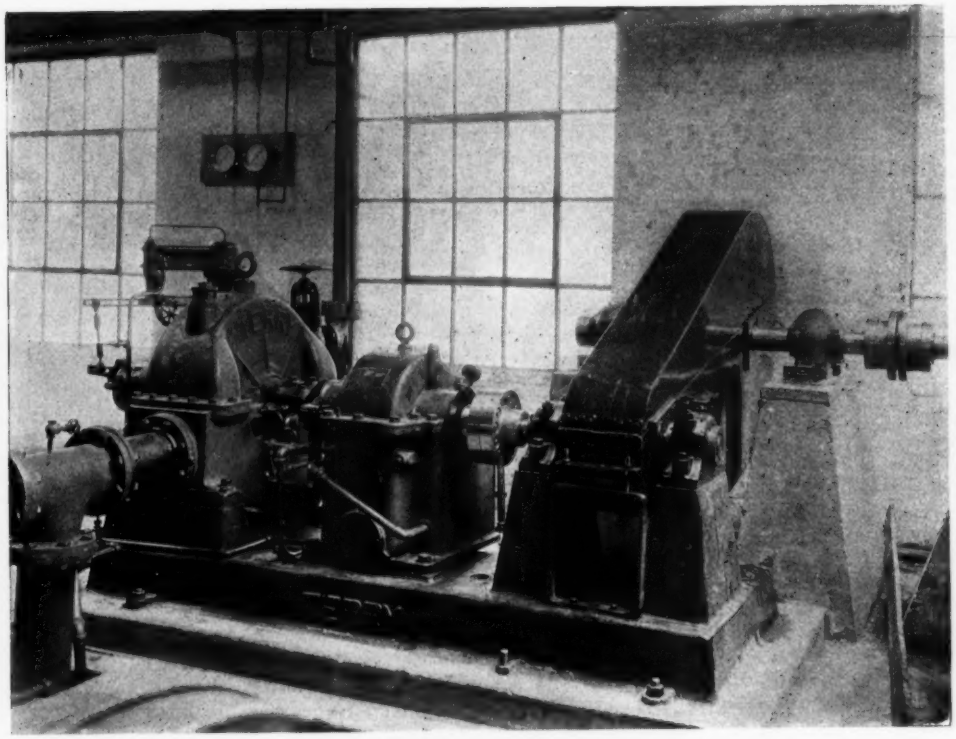
### July Construction Planned for Power

Construction of the new high-power transmission line over which it is proposed to provide Sudbury mines and industries with current Abitibi Canyon, more than 200 miles from Sudbury, at $22 per h.p., will be commensed in July. The greater part of the work this year will consist of surveying and clearing the right of way for the power line, and opening roads for hauling in cable and equipment. As the new transmission line will pass through a large area of mining areas hitherto undeveloped and beyond the reach of transportation, its influence on mining and the paper industry may be considerable. A new sub station is also to be built in the neighborhood of Sudbury at a cost exceeding $250,000. Construction of the line and power station will be completed a year from next October, according to the present schedule of the Abitibi Power and Paper Company, which is going into the power business on a large scale.

### To Build New Box Plant

Bulk contract for erection of a $45,000 plant in London, Ont., for Jones Box and Label Company, Ltd., Dundas street, London, has been awarded to the Fleet Construction Company, 82 Bloor

# TERRY
# Paper Machine Drive



85 H.P. drive in an Eastern Mill. Replaces a reciprocating engine

## NEW LIFE FOR THE OLD PAPER MACHINE

**The Terry drive in addition to being used with new paper machines has been employed extensively with older units.**

**Among its many advantages in cases of this kind are its ability to operate at higher paper speeds and its wide speed range. It also gives uniform regulation, clean exhaust steam for drying, power at low cost and highly dependable operation.**

**Terry engineers have accumulated a considerable amount of important information on applying new drives to old machines. Let them help you.**

T-1055

**The TERRY STEAM TURBINE COMPANY**
TERRY SQUARE, HARTFORD, CONN.
**Steam Turbines - Gears - Shaft Couplings**

street west, Toronto, and work will be started at once. Plans by L. G. Bridgeman, architect, Royal Bank Building, Toronto, call for a structure 65 by 80 feet, three stories and basement, reinforced concrete and brick construction.

### Notes and Jottings of the Trade

E. A. Schofield, president of the Schofield Paper Company, St. John, N. B., and a past president of the Canadian Paper Trade Association, has returned after an extended stay on the Pacific Coast. For several months he made his home with his son in Los Angeles.

The many friends of F. G. Hunt, of the Toronto office of the Howard Smith Paper Mills, Ltd., were pleased to see him at the office after a rather protracted illness.

A comprehensive folder on Luxacoated Book paper made by the Alliance Paper Mills, Ltd., head office Toronto, has just been sent out by the publicity department of the company. The folders show sizes and weights of this super coated paper which is being extensively used for fine book work, illustrated brochure and catalogue printing.

With roofing completed, remaining sub-contracts have been awarded by the contractors who are building a $150,000 new plant for the F. N. Burt Company, manufacturer of blank forms, etc., at Mount Dennis, near Toronto. The factory will be completed early this summer and removal made from Wellington street west, Toronto.

J. B. Brown, of T. B. Little & Co., Montreal, wholesale paper merchant, was a recent visitor in Toronto.

C. Howard Smith, president, and Harold Crabtree, vice-president, of the Howard Smith Paper Mills, were callers on their Ontario interests in the paper field during the past week.

The Alliance Paper Mills, Ltd., head office Toronto, have added cobweb and alligator to their range of embossed designs in glassine and report that the paper is meeting with ready sale.

A. W. Augustine, of the Kitchener Paper Box Company, Ltd., has returned from an extended trip to Europe.

The many friends of Lieut.-Col. George E. Reid, London, Ont., head of Reid Bros., paper box manufacturers, will regret to learn that he was a recent victim of an accident in which he fell and fractured a leg. He will be laid-up for some time as a consequence of the mishap.

## Receivers for Cornstalks Products Co.

DANVILLE, Ill.—Federal Judge Walter C. Lindley has appointed F. E. Butcher and Clint C. Tilton of Danville as receivers for the Cornstalks Products Company, Inc., a Delaware corporation with headquarters in New York and a plant in Illinois.

The appointments were made with the consent of the company and the action is described as a friendly receivership in equity designed to conserve the assets for a short period pending a reorganization.

The Cornstalks Products Company, Inc., manufactures chemical products, cellulose and paper, using cornstalks and other agricultural byproducts for the manufacture of pulp. Assets at the end of 1929 amounted to $4,389,340. Capitalization consists of 335,682 shares of common, listed on the New York Produce Exchange, and 1,465 shares of $7 cumulative convertible class A stock.

## To Close Sewall Island Mill

WATERTOWN, N. Y., May 26, 1930.—Announcement is made by the Hinde & Dauche Paper Company of the closing down of its Sewall Island plant following fourteen years of operation here. The company recently went to considerable expense in making improvements to the property and the announcement of its plans came somewhat as a surprise. W. H. Hollis was manager of the local branch. The plant has operated on curtailed schedules for some time past with a greatly reduced working force.

## New Building for Mellon Institute

Dr. Edward R. Weidlein, Director, Mellon Institute of Industrial Research, Pittsburgh, Pa., has announced, speaking for the Board of Trustees, that the institution is to increase its facilities for serving American industries by a building project that will enable the material expansion of all its research activities. Detailed plans are now being prepared by the architects, Janssen and Cocken, of Pittsburgh, and construction will begin as soon as the drawings are completed, early this fall. The Mellon-Stuart Company, also of Pittsburgh, is the general contractor.

The building, which is to occupy the site of the Institute's Building No. 2, is designed on classical lines, a plain, simple, but massive structure, surrounded by columns. It will provide ample space for housing many more Industrial Fellowships than the 63 that now tax the Institute's facilities to the utmost. The other departments of the institution will be increased in proportion.

When the present home of the Institute was completed, in 1915, it was felt that the Industrial Fellowship procedure created by Robert Kennedy Duncan had passed from the experimental to the practical stage. The building, which was given to the institution by Andrew W. and Richard B. Mellon, incorporated the best laboratory constructional features of that period. It was thought then that it would provide adequate space for growth for many years; but for practically 10 years the Institute has had a waiting list of companies, often almost as long as the roster of companies whose problems were being investigated. Even the additional space afforded by Building No. 2, acquired in 1927, gave but temporary relief from the need for more laboratories arising from proposed new investigations and from the necessity of increasing the personnel of fellowships already in operation.

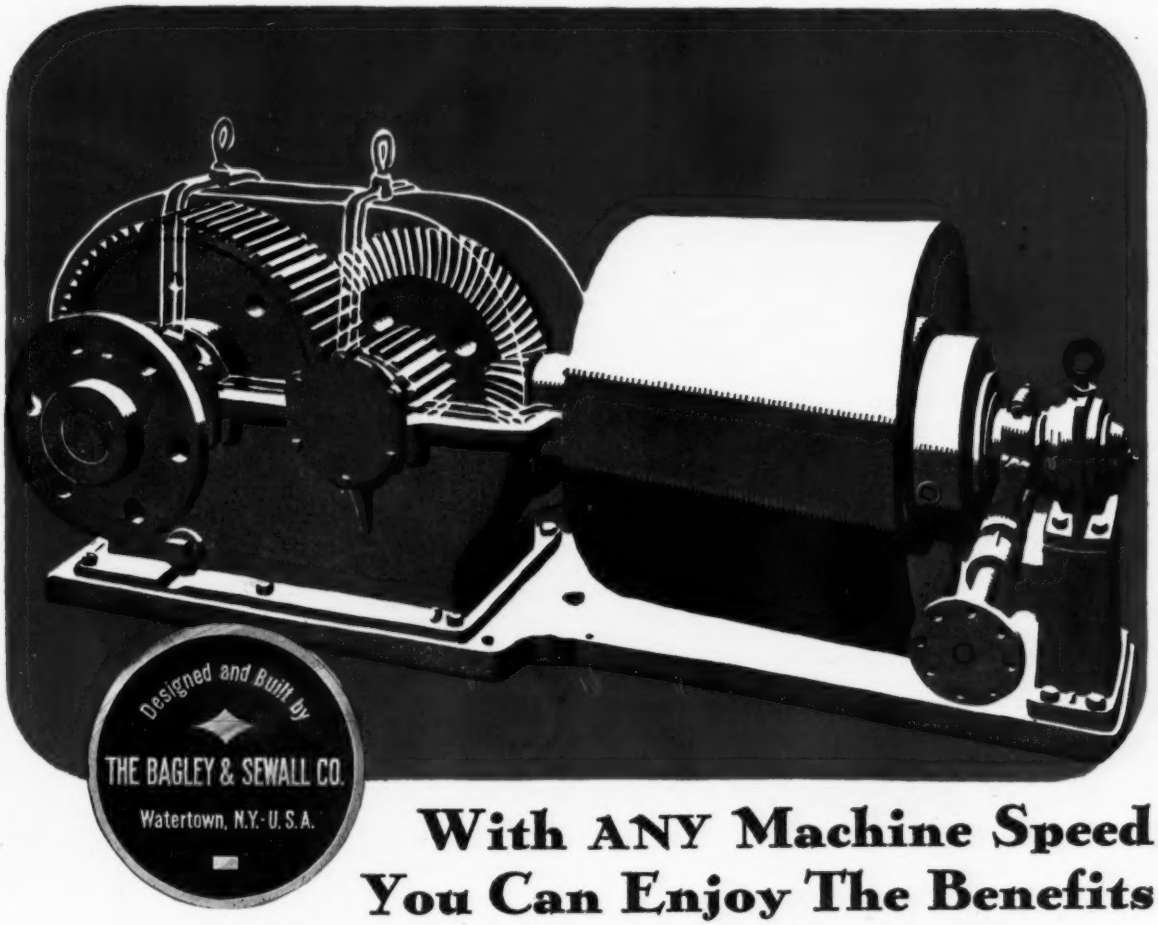
In addition to providing a greatly increased number of laboratories, the new building will give more commodious quarters for the general departments. The present library contains 11,000 volumes; the new library is planned to accommodate 250,000 volumes. The present Department of Research in Pure Chemistry will be expanded and facilities for pure research in other branches of science will be provided. Much more elaborate chemical engineering laboratories are to be available in the new building, and also the fellowships in each specific field of industrial research are to be grouped in suites of rooms so that they can best make use of general apparatus adapted to their needs. Certain rooms will be equipped for specialized phases of experimental technique, such as electrochemistry, spectroscopy, low-temperature studies, radiations, high-pressure experimentation, etc. Other special features to be included are a large lecture hall, a dining hall, an industrial fellowship museum, and an underground garage. For the past five years members of the Institute's Executive Staff have been visiting important laboratories in America and Europe to obtain information on new features in design and equipment.

The new laboratory structure will be of that type of classical Greek architecture known as Ionic. It is to be seven stories high, with monolithic columns along all four sides. The proportions will be approximately 300 feet by 400 feet. The main entrance, which is located on the third floor, is reached by steps extending along the entire front of the building. The laboratories are to face on interior courts. The design of the new building is to be such that additional laboratory suites can be constructed in the interior courts without marring the beauty of the general appearance and without interfering in any way with the original laboratory units.

## Complains About River Pollution

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., May 26, 1930.—Officials of the Schroon River Pulp and Paper Company appeared before the Common Council this week to complain of the dumping of refuse oil into the river by garages in this section. It was stated that the company had suffered the loss of at least a carload of paper because of the oil having been thrown in the river. The health board was instructed to stop the practice at once.




# With ANY Machine Speed You Can Enjoy The Benefits Of These Bagley & Sewall Drives

**The unquestioned advantages and conveniences of Bagley & Sewall All Metal Spiral Bevel Gear Drives are not confined solely to high speed machines. Slower machines, too, equipped with these Drives in the Compound Type, profit by the same positive finger tip control, the vibrationless performance, the velvety starting, the space conserving compactness. The Compound Type Drive combines the features of the regular models,—precisely cut all metal gears, Timken bearings, full lubrication, enclosed oil bath, smooth clutches,—with a perfectly functioning reduction device in any desired ratio. Installed quickly, in separate units or complete systems, without interrupting production.**

***We'd like to tell you more about them—write us***

## The Bagley & Sewall Co.

**Watertown, N. Y.**

# MILL SUPERINTENDENTS MEET IN PHILADELPHIA

(*Continued from page 46*)

of the election of the following:—President, Carl Magnus, Standard Paper Manufacturing Company, Richmond, Va.; 1st vice president, Roy H. Kelly, Marathon Paper Company, Rothschild, Wis.; 2nd vice president, William H. Brydges, Bedford Pulp and Paper Company, Big Island, Va.; 3rd vice president, J. Bertwell White, National Vulcanized Fibre Company, Yorklyn, Del.; 4th vice president, Ernest W. Bush, Chemical Paper Manufacturing Company, Holyoke, Mass.; 5th vice president, H. G. Randall, Champion Coated Paper Company, Hamilton, Ohio, and the Secretary and Treasurer, Robert L. Eminger, continues to serve, his election last year having carried a three service in this executive capacity. Fred J. Rooney, Upson Company, Lockport, N. Y., was elected trustee, for the three year term.

### Secretary-Treasurer Eminger Reports

In a review of the year's activities of the Association, Robert L. Eminger, secretary and treasurer of the organization, reported on the progress made in the extension of membership stating that there were 114 new associates enrolled in the period that the total enrollment to the date of the Convention was 676. He reported the largest attendance at the Divisional Meetings ever recorded throughout the past year. He told of the plans of the Joint Committee and their preparation of constructive programs which will be carried on throughout the year to come. He urged the superintendents to make place in the mills for young college students who were taking up courses in paper making and chemistry as well as the mechanical professions during the summer vacation in order that the university students might have opportunity

WILLIAM H. BRYDGES
2nd Vice President

of securing practical education to supplement their technical training. He extended thanks to President Ramsey for his co-operation and to the other officers of the Association and the various committees for their assistance and then voted a word of appreciation to the American Pulp and Paper Association and to the Technical Association of the Pulp and Paper Industry for similar aid in promoting the welfare of the Superintendents Association and its members.

### Summarizes Mill Service Committee Activity

Summary of the Mill Service Committee activities and the need for closer contact with its work by the mill superintendents was stressed in the report of the Chairman of the Committee, K. E. Terry, of the S. D. Warren Company, Cumberland, Me. This committee was inaugurated two years ago and has been carrying out a constructive program of interchange of information on mill equipment, chemical developments and modern progressive methods of operation of the paper making plants with innovations that have been helpful in promoting the industry from the manufacturers angle. He urged his constituents in the mill superintendents group to keep in touch with the Mill Service Committee and to report to it all experiences that have been made with new units of machinery, power, chemical or other phases of the practical side of paper making and whether they have proved satisfactory or otherwise. He stated it was the purpose of the Mill Service Committee to render a special service to those members who were unable to attend the annual conventions by having on file for their use all information of new developments in the mill and to circulate this among the superintendents who could not attend the yearly meetings, through an interchange of information.

J. BERTWELL WHITE
3rd Vice President

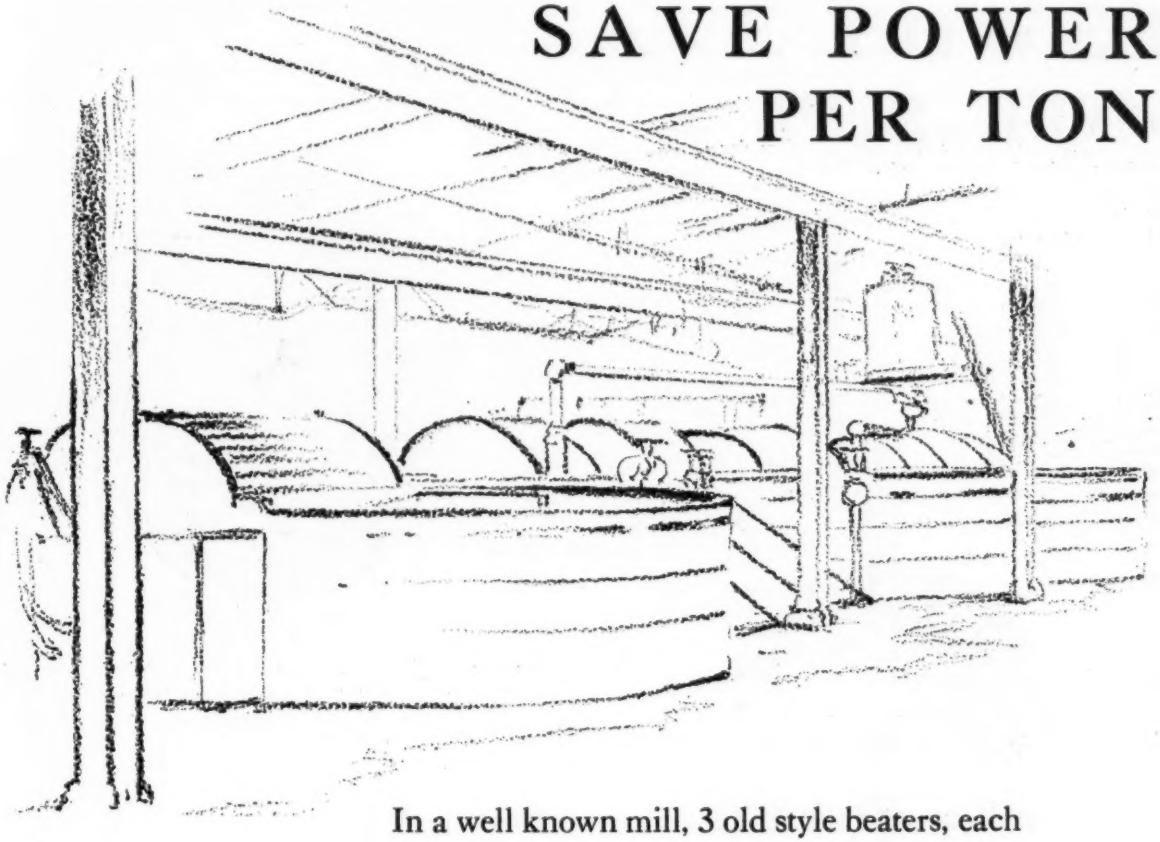
### Divisional Meetings

After the Friday luncheon service the members adjourned to the various rooms set aside for the Divisional Meetings including those of the sulphite, pulp, sulphate-soda pulp, mechanical pulp, book and fine paper and board divisions. Ferrous alloys were discussed at the sulphate pulp meeting by J. D. Miller, of the York Haven Paper Company while A. D. Merrill, of the Chemipulp Process, Inc., Watertown, N. Y., gave a brief but thorough survey of the process of recovering the relief gases and liquors from sulphite digesters without cooling and accomplished by interposing a pressure vessel called an acid accumulator between the storage tanks and the digesters. He gave composite tables of all mills using Chemipulp Process showing average results obtained showing the savings resulting from its use, in steam, sulphur and limestone and screenings. C. L. Sheffield, of the Dorr Company, Inc., New York, reviewed the processes of paper sulphate and soda recausticizing in the chemical pulp industry over the last half decade. He was followed by Martin T. Kermer, of the Buffalo Foundry and Machine Company, Buffalo, N. Y., whose talk on the latest developments in the matter of "The Evaporation of Soda-Sulphate Liquors" was a treatise of the progressive steps taken in the way of mechanical equipment working for economy in power and utilization of vapors. He demonstrated this by slides of the Buffovak vertical rapid circulator equipment which occupies a small floor space and uses low pressure steam units.

### Mechanical Pulp Technique Explained

Alfred L. Webre, Merion, Pa., gave an informal presentation of the problems involved in the use of heat for power generation, evaporation and heating. Movie films of the "Age of Speed" and

# EMERSON HIGH DENSITY HIGH SPEED BEATERS SAVE POWER PER TON



In a well known mill, 3 old style beaters, each handling 1200 lbs. at 3% density, took 180 H.P. . . . 3 modern Emerson beaters replaced them. Each handled 1850 lbs. of the same stock at 7% density, used 170 H.P., *effected a 50% power saving over the old beater room.* Let Emerson modernize your beater room, help you meet competition at a profit. Write for complete information, prices.

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a talk on The Norton Pulpstone by P. F. Luckham of The Norton Company, and a talk by Dr. J. Campbell, Director of Research Bureau of Tests, International Paper Company with "Reminiscences of a Ground Wood Superintendent" by M. J. Argy, of the Cliff Paper Company, Niagara Falls, completed the program of the Mechanical Pulp Division.

**Book and Fine Paper Treatise**

"New Devices on Drying Fine Bond Paper" was the theme of John Sullivan of the Proctor & Schwartz Company, Philadelphia. The latest devices in driers for this purpose were shown to the trade with a diagram distributed among the audience showing the advantages of these driers, size and capacity, and construction of the machine. The Proctor & Schwartz Driers dry by means of heated air which is recirculated and so accomplishes drying at very low temperatures, automatically controlled and adjusted to meet desires of the operator. Sizing rolls are furnished at the feed end of the machine and the tension rolls and winder or sheet cutter at the delivery end of the machine. It does away with expensive loft drying and is small and compact and eliminates stock marks, also allowing for free shrinkage of the paper which produces the cockle, saves time, gives paper of higher strength and is an economizer in labor.

"Opacity and Transparency of Papers" was the discussion of William M. Nash, of the Seaman Paper Company, Chicago, while E. T. Bennington, Cleveland Tramrail Company, Cleveland, Ohio, discussed "Modern Material Handling Systems as Applied to the Paper Mill" showing transportation equipment that saved in time, labor and overhead. An open forum "question box" was directed by Harry E. Williamson, Champion Fibre Company, Canton, N. C.,

ROBERT L. EMINGER
Secretary-Treasurer

in which the mill men asked questions and were answered by their associates or by the director.

**Board Division Subjects**

Ralph Shaffer, MacAndrews & Forbes Company, Camden, N. J., read a paper on "The pH Value of Water and Stock and Its Relation to Beater and Calender Colors." James G. Vail of the Philadelphia Quartz Company, Philadelphia, whose paper on "P's and Q's for the Paper Maker" was postponed for reading on Friday also gave an illuminating discourse on "The Use of Silicate in the Manufacture of Laminated Board." He gave freely information on usefulness of silicate to the board makers and demonstrated the various properties of the mineral in the steps of production showing the silicate in the hard and dry form and in the semi-moist and completely evaporated film which is produced under treatment adapting it for paper making purposes. He urged the superintendents to consult the "P's and Q's" bulletin of the Philadelphia Quartz Company for greater usage of silicate in helpfulness to them and to send at any time to its editor for information which might be needed in the use of this product.

Work done on water removal on wet board machine was explained in the talk of George Wyman, Bird & Son, and "The Use of Wax in Sizing Papers" by Ralph W. Kumler, of Bennett, Inc., Wilmington, Del., while D. P. Bailer, of the Flintkote Company, New York, spoke on "Manufacture and Uses of Asphalt Board."

**Fourdrinier Wires Interesting Topic**

Moving pictures of the manufacture of wires with explanatory

H. G. RANDALL
5th Vice President

notations by Joseph H. Dow, of the Eastwood Wire Corporation, Belleville, N. J., occupied the early hours of the meeting on Saturday morning, and was of such interest to the superintendents that a large number attended the session and joined in the many interesting questions that arose after the movie showing of manufacture and use in the paper mills with Mr. Dow and the members giving their experiences in the factors that came up for discussion in the questionnaires. Fourdrinier wires and methods of mending, construction and endurance tests all were propounded throughout the lengthy and interesting talk.

**Modern Electric Wonders Demonstrated**

In the amazing disclosures of the marvels of the "Photo-cell or the Electric Eye" which were given by H. B. Stevens, of the Westinghouse Electric Manufacturing Company, the superintendents and guests found much to wonder at and to hold them spell bound for more than an hour or so as the photo cell was demonstrated and its vast possibilities disclosed for registering with superhuman sensitivity.

The "Eye," a commercial development of the photo-electric cell, was demonstrated before the paper men by Mr. Stevens in the course of an address on "Photo-Electric and Glow Discharge Devices and their Application to Industry."

Where routine tasks of inspection and sorting have heretofore been dependent upon the easily wearied human eye, a mechanical never failing process may now be substituted, Stevens said, thus releasing workers for less monotonous tasks. Small packages of a manufactured product were automatically moved through the beam of the photo-electric apparatus, and those of a defectve shape, or without a label, were rejected and tossed aside as the product moved through the spot of light. More accurate than the human eye, this electric inspection will operate equally well day or night under any weather or temperature condition, the speaker pointed out.

A lighted match was tossed into a mixture of gasoline and

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Type WP

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Murphey Equipment Co., 412 Hurt Bldg., Atlanta, Ga. 101 Kinney Bldg., Charlotte, N. C.

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National Supply Company, Toledo, Ohio.

Nebraska Machinery Supply Co., 819 O Street, Lincoln, Neb.

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kerosene on the lecture platform. The first cloud of smoke instantly operated the "photo-electric smoke detector," which in turn released carbon-dioxide from a cylinder and extingushed the fire before the audience realized what had happened.

Persons entering the auditorium were counted automatically as they crossed a beam of light which extended across the entrance. Every interruption of the beam actuated a counter. Stevens pointed out how apparatus of this type could be used for toll bridges, vehicular tunnels, traffic surveys, and for the counting of items in mass production, or detecting paper breaks in mills where machinery must be stopped instantly to prevent accidents.

The protection against explosion in domestic oil and gas furnaces was also demonstrated by Mr. Stevens, showing how the flow of fuel could be instantly stopped, when for any reason the flame was extinguished.

The grid-glow tube, he said, was also applicable as a protection against theft as it will act instantly and operate a suitable alarm, when anyone even approaches it. The proximity of a hand is sufficient to actuate the sensitive apparatus.

The advent of the radio, Stevens pointed out, had, with television and the talkies, been a great stimulus to an intensive study of vacuum-tube devices and the discovery of an ever-widening application for them. The Westinghouse Company, he said, had given much study and research to these applications, resulting in many new fields for their use in industry during the past two years.

### Duel Banqueting

Two well attended banquets marked the 11th Annual Convention of the Paper Mill Superintendents Association and while the diners enjoyed delicious dinners there were social and entertainments features that made them noteworthy affairs for th hospitality extended on this occasion. On Thursday evening President Ramsey introduced to the diners "Chief Wauwauseeka" who in trade chronicles is Fred C. Boyce, founder and first president of the Association and who last year was presented a medal for his work in behalf of the body. Much cheering greeted the brief word of welcome extended his associates by the "Chief" and warmly demonstrated the good will of the members and guests for the distinguished trade leader. Following the greeting of the Nestor of the Superintendents Association a telegram was read and bearing the cheering words of welcome to all from Ben Larrabee, of the Olympic Forest Products Company, Port Angeles, and Mrs. Larrabee, who expressed regrets in not being able to join in the annual celebration at the banquet board.

John J. White, former mayor of Holyoke, Mass., for five terms of office and who has a wide circle of friends in the trade was selected to preside at the banquet as toast master in place of Mayor Mackey of Philadelphia who was not able to attend but sent his good wishes and the hospitality of the City of Brotherly Love to the members. With his wealth of genial repartee former Mayor White placed the guests in excellent humor that gave zest to the appetite and brought to all the keener enjoyment of the evening's repast. Seated at the speakers table were, besides the officers of the Association, the speakers, Russell Crevinston of the Crane Company, Chicago, Mr. Boyce, and Jesse H. Neal, general manager of the American Pulp and Paper Association, who voiced in hearty messages of amity their gladness in being able to join in the annual co-mingling of their associates of the mill and supply branches of the industry.

Russell Creviston made his subject "humanizing" business and advised the mill supervisors of the many changes that had come into the industrial life of America in recent years and the needs of adjustment of management to meet these changing conditions of the past decade. He told how outside business factors affect the public minds, how the radio, airplane and other progressive steps have influenced the public and the requirements of business needed to conform to these changes and the problems that have come with them.

Mr. Neal spoke of the splendid co-operation which the mill superintendents had extended the American Pulp and Paper Association and expressed his pleasure and that of his fellow officers for the harmony existing between both organizations and their memberships. Other telegrams from trade associates were those of Dr. Hugh B. Baker, Peter J. Massey and Bill Robertson. There followed a well diversified program of vaudeville which lasted until past midnight.

Friday's banquet was equally as entertaining as the diners were given another treat in fellowship of the dining table and were united in the commendations that were made in the presentation speech of Mr. Boyce when he awarded the past president gold medal to President Ramsey and then heard Tom Harvey extol the Association for its work in behalf of the mill superintendents and the paper making industry as a whole. Carl Magnus headed the Committee appointed to select the member who had given the most service to the industry in the past year and deserving of the gold watch which is annually bestowed as the Post Award. The gold watch this year was awarded to President Ramsey who was eulogized by the speakers as deservng of this recognition for his zeal in behalf of the Association and the paper making industry. Group singing at the dinner table and the joining of the full membership in the songs which interspersed the banquet brought to light some excellent talent among the trade and soloists were

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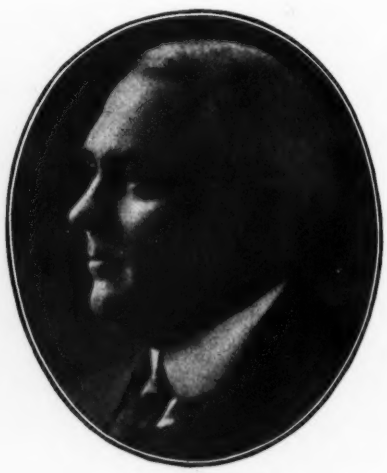

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selected from the guests as entertainers of their fellows throughout its service.

The main speaker of the evening was Dr. Manly P. Northam, engineer and philosopher, who gave a most interesting talk on human engineering, taking his audience through the realms of philosophical and psychological management and control of working forces, mixing these phases with practical supervision of industrial staffs. Then followed the dancing program which held until morning hours.

### Award of Gold Prizes

During the Friday evening dinner hour award of golf prizes were made to the winners of the Golfing Tournament held on Wednesday at the Lu Lu Temple Golf Club. There were two separate competitions—one for the members and another for the salesmen in paper mill supplies. Winners in the golf contests were E. J. McDonnell, Groveton Paper Company, for the low net who was presented the silver cup which is to be won three years before permanent ownership can be established and which was presented to the organization by the Eastwood Wire Works. Frank S. McDonnell, of Tileston & Hollingsworth, won the first low gross and was awarded a gold cigaret holder donated by the Stein Hall Company, while William H. Croft, of Esleeck Manufacturing Company, won the second low gross and was awarded a silver bowl donated by the Association. In the salesmen contest R. Hermann of the Hermann Manufacturing Company, won the low gross and was awarded a silver plate while his fellow golfer, W. K. Boyd, Maine Electrical Company, won the low net and was given a silver ice container.

The newly elected president, Carl Mangnus, presided at the closing sessions on Saturday and in his word of praise for the convention extended to the Committees in charge of arrangements the appreciative expressions of the members for the gala occasion and for the fine educational program and its social diversions for both women and the members.

The ladies were entertained at the banquets and in sightseeing trips to Valley Forge, and the historical places of Philadelphia and were among the 350 associates who enjoyed the boat trip down the Delaware. The officers and chairmen of the Committees who were active in arranging the program of the Convention were:—

President, James Garfield Ramsey; First Vice-President, Carl Mangus; Second Vice-President, Roy H. Kelly; Third Vice-President, William Brydges; Fourth Vice-President, Charles C. Mooney; Fifth Vice-President, Ed. J. Blosser; Secretary-Treasurer, Robert L. Eminger; and Convention Chairmen—J. Bertwell White, General Chairman; Joseph E. Plumstead, Finance; Mrs. Joseph H. Dow, Registration; Roy H. Underdown, Arrangements; Frank E. Winslow, Program and Entertainment; H. L. Joachim, Transportation and Mill Visits; Joseph H. Dow, Golf Tournament; Mrs. James G. Ramsey, Ladies Entertainment; John Bingham, Reception.

### Papers in Technical Section

Many of the papers presented at the convention will be found in this week's issue of the Technical Section of the PAPER TRADE JOURNAL.

### Among Those Present

Those attending the Convention were:—

A. J. Allison, Simonds, Warden-White Company, Dayton, Ohio; Carl Anderson, Nashua River Paper Company, East Pepperell, Mass.; James J. Andrews, Fox Paper Company, Lockland, Ohio; H. J. Andrews, Shartle Brothers Machine Co., Middletown, Ohio; M. J. Argy, Cliff Paper Company, Niagara, Falls, N. Y.; Edward P. Argy, Cliff Paper Company, Niagara Falls, N. Y.

Harold R. Bailey, Union Screen Plate Company, Fitchburg, Mass.; W. E. B. Baker, Stein, Hall & Company, New York, N. Y.; Frank Ball, Manhattan Rubber Company, Passaic, N. J.; C. M. Baker, American Paper & Pulp Assn., New York, N. Y.; F. C. Bayer, Wausau Paper Mills Co., Bamkam, Wis.; F. L. Barstow, U. S. Rubber Company, Fitchburg, Mass.; E. N. Bechard, Eastwood Wire Works, Belleville, N. J.; J. Coleman Bentley, E. F. Houghton & Company, Philadelphia, Pa.; F. E. Bentley, Noble & Wood Machine Company, Hoosick Falls, N. Y.; F. Norman Beveridge, Hopewell, Va.; Geo. L. Bidwell, The Warren Mfg. Co., Milford, N. J.; Harold O. Bing, Paper Textile Mach. Co., Sandusky, Ohio; John Bingham, Dill & Collins Company, Philadelphia, Pa.; Chas. F. Black, Penberthy Injector Company, Detroit, Mich.; H. N. Booker, Hermann Mfg. Company, Lancaster, Ohio; J. M. Booth, The Huron Milling Company, New York, N. Y.; A. O. Bowness, E. B. Eddy Co., Ltd., Hull, Canada; L. M. Booth, Booth Chemical Company, Elizabeth, N. J.; J. W. Boyd, Maine Electric Company, Portland, Maine; Thomas E. Boyne, Smith Paper Company, Lee, Mass.; P. D. Bradley, Fort Howard Paper Company, Green Bay, Wis.; G. S. Brazeau, Appleton Machine Company, Appleton, Wis.; B. M. Briggs, Lawrence Paper Mfg. Co., Lawrence, Kansas; J. H. Brougham, Foster Box Board Company, Utica, N. Y.; Ogden Brower, 3rd, Gibbs Brower Company, Inc., New York, N. Y.; E. Avery Bruce, Ciba Company, Philadelphia, Pa.; L. H. Breyfogle, Draper Brothers Company, Kalamazoo, Mich.; A. W. Bronk, Carthage, N. Y.; Charles J. Brooks, Starch Prod. Company, Brooklyn, N. Y.; M. V. Brooks, Miamisburg Paper Company, Miamisburg, Ohio; Alfred Bryant, Jessup & Moore, Wilmington, Del.; William H. Brydges, Bedford Pulp & Paper Company, Big Island, Va.; W. H. Buxton, Philadelphia Quartz Company, Philadelphia, Pa.; Warren J. Burns, Sonoco Products Company, Hartsville, S. C.; H. H. Burrows, Raybestos, Manhattan, Inc., Passaic, N. J.; Ernest W. Bush, Chemical Paper Mfg. Company, Holyoke, Mass.; De Haven Butterworth, H .W. Butterworth Sons Company, Philadelphia, Pa.

D. E. Cable, U. S. Rubber Company, Cleveland, Ohio; O. W. Callighan, Edgar Brothers Company, New York, N. Y.; Dr. J. Campbell, International Paper Company, New York, N. Y.; Enrique Cabanas, Shartle Brothers Machine Company, Middletown, Ohio; James A. Cameron, Cameron Machine Company, Brooklyn, N. Y.; T. A. Cape, West Reading, Pa.; E. E. Carpenter, Sanitary Prod. Co., Riegelsville, Pa.; A. E. Carpenter, 3rd, E. F. Houghton Company, Philadelphia, Pa.; E. W. Carpenter, P. W. Carr, National Aniline & Chemical Co., Boston, Mass.; F. E. Caton, Chesapeake Paperwood Company, Baltimore, Md.; Charles Champion, Miller Falls Paper Co., Miller Falls, Mass.; R. S. Cheney, J. W. Bolton & Sons, Lawrence, Mass.; C. J. Christiansen, Fibre Making Processes, Inc., Chicago, Ill.; Carleton L. Clark, Thos. H. Savery, Jr., Nash Eng. Co., Ch icago, Ill.; A. C. Clark, J. W. Bolton & Sons, Lawrence, Mass.; Norman Clark, Standard Paper Mfg. Co., Richmond, Va.; Samuel Clayman, National Aniline & Chemical Co., Philadelphia, Pa.; Edward J. Clark, Cornell Wood Prod. Co., Cornell, Wis.; W. B. Clements, Bryant Paper Co., Kalamazoo, Mich.; Chauncey E. Cole, John H. Heald Co., Lynchburg, Va.; F. H. Cole, Walworth Co., New York, N. Y.; Harry F. Coleman, Grinnell Co., Inc., New Orleans, La.; John P. Cooney, Peninsular Paper Co., Ypsilante, Mich.; O. C. Cordes, Westinghouse Electric & Manufacturing Co., Philadelphia, Pa.; John Cornell, The Paper Mill, New York, N. Y.; John E. Costello, J. M. Huber, Inc., Chicago, Ill.; Ed. T. A. Coughlin, Deerfield Glassine Co., Monroe Bridge, Mass.; J. W. Corriston, E. J. Lavino & Co., Philadelphia, Pa.; H. C. Couch, Morgan Paper Co., U. S. Envelope Co., Lititz, Pa.; E. G. Crissey, Hooker Electrochemical Co., New York, N. Y.; William H. Croft, Esleeck Mfg. Co., Turners Falls, Mass.; J. F. Cronin, Cheney Bigelow Wire Works, Springfield, Mass.; W. W. Cronkhite, General Electric Co., Schenectady, N. Y.; Lester W. Crouse, Paper Makers Chemical Corp., Easton, Pa.; W. R. Crute, Champion Fibre Co., Canton, Ohio.

Charles Davidson, Southworth Co., Mittineague, Mass.; Wayne Davies, E. F. Houghton & Co., Philadelphia, Pa.; B. W. Dean, E. D. Jones & Sons, Pittsfield, Mass.; J. A. DeCew, Process Eng., Inc., New York, N. Y.; S. Brandt DeFarges, Jessup & Moore, Philadelphia, Pa.; V. S. Denison, Paper & Textile Mchy. Co., Sandusky, Ohio; Hubert A. Des Marais, General Dyestuff Corp., Boston, Mass.; J. C. Dieffenderfer, Paper Makers Chemical Corp.,

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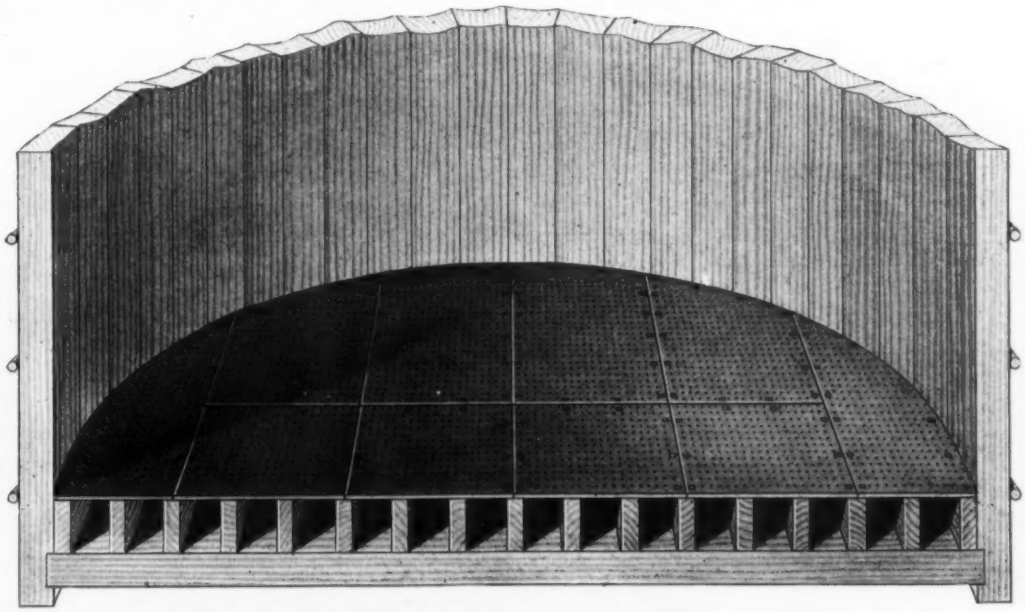
Marathon Paper Co., Rothschild, Wis.

Munising Paper Co., Munising, Mich.

Olympic Forest Products Co., Port Angeles, Wash.

Rhinelander Paper Co., Rhinelander, Wis.

Restigouche Co., Ltd., Campbellton, N. B., Canada and others.



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F. C. Farnsworth, Farnsworth Co., Conshohocken, Pa.; J. J. Farrell, Downingtown Mfg. Co., Downingtown, Pa.; Fred H. Fielding, Diamond Mills Paper Co., Bloomfield, N. J.; S. N. Finney, Moore & White Co., Philadelphia, Pa.; Victor E. Fishburn, C. F. Burgess Laboratories, Freeport, Ill.; S. W. Fletcher, J. O. Ross Engineering Corp., New York, N. Y.; George J. Forman, Schmidt & Ault Paper Co., York, Pa.; James Foxgroven, Paper Makers Chemical Corp., Kalamazoo, Mich.; Val Friedrich, Jr., Bechett Paper Co., Hamilton, Ohio; L. D. Frisbie, Westfield River Paper Co., Russell, Mass.

F. C. Gildenzopf, Congoleum-Nairn Co., Asbestos, Md.; F. H. Glanville, Crocker-McElwain Company, Holyoke, Mass.; Otto J. Goeppinger, Waterbury Tool Company, Waterbury, Conn.; Jesse Good, Hinde & Dauch, Gloucester, N. Y.; William A. Gooke, Shartle Brothers Mach. Co., Middletown, Ohio; M. V. Grant, Provincial Paper, Ltd., George town, Canada; Wm. Greeley, F. C. Huych & Sons, Albany, N. Y.; John W. Gregor, Jessup & Moore Paper Co., Elkton, Md.; Harry Griffin, Taylor Stiles & Co., Riegelsville, N. J.; Robert Guie, Philadelphia Felt Co., Philadelphia, Pa.

B. W. Haddock, Escanaba Paper Company, Philadelphia, Pa.; M. N. Hamilton, Noble & Wood Machine Co., Hoosick Falls, N. Y.; Russell W. Hamilton, Nashua River Paper Co., East Pepperell, Mass.; Walter I. Harte, Noble & Wood Machine Co., Hoosick Falls, N. Y.; Harold A. Harvey, Enterprise Machine Co., Middletown, Ohio; Tom Harvey, The Gardner & Harvey Co., Middletown, Ohio; James L. Hayes, Bemis Bro. Bag Company, Peoria, Ill.; Timothy E. Healey, Smith Paper Company, Lee, Mass.; Frank R. Henry, Simonds, Warden-White Co., Dayton, Ohio; G. A. Hermann, Hermann Mfg. Co., Lancaster, Ohio; S. M. Hesser, Hinde & Dauch Paper Co., Glouchester, N. Y.; H. R. Heuer, Newton Paper Company, Newton Falls, N. Y.; George Hively, Champion Fibre Company, Canton, N. C.; Earl Hobaugh, International Paper Co., Piercefield, N. Y.; Hubert F. Hoffmann, General Dyestuff Corp., Philadelphia, Pa.; F. J. Hogan, National Paper Products Co., Carthage, N. Y.; R. W. Holden, Stowe & Woodward Company, Newton Upper Falls, Mass.; C. M. Holt, Pennsylvania Salt Mfg. Co., Philadelphia, Pa.; Joseph L. Hollihan, Port Huron Sulphite & Paper Co., Port Huron, Mich.; H. A. Horstmann, Brooklyn, N. Y.; Allen Hyer, Black-Clawson Company, Hamilton, Ohio; Ronald W. Hynes, Newton Falls Paper Co., Newton Falls, N. Y.; A. O. Hurzthal, Proctor & Schwartz, Inc., Philadelphia, Pa.

J. A. Inge, Albemarle Paper Mfg. Co., Richmond, Va.; Thomas Ireland, Crane Company, New York City.

Wm. C. Jay, Sanitary Products Co., Philadelphia, Pa.; William Jenkins, International Paper Co., Turners Falls, Mass.; H. H. Jensenius, United States Rubber Co., Philadelphia, Pa.; H. D. Jones, American Wringer Company, Woonsocket, R. I.; J. D. Jones, Robins Jones Bearings, New York, N. Y.; M. Jordan, International Paper Co., Palmer, N. Y.

Lloyd Kauffman, Paper Products Mfg. Co., Swarthmore, Pa.; Thomas J. Keenan, The Paper Industry, New York, N. Y.; D. M. Kelly, Bloomer Brothers Co., Newark, N. Y.; Roy H. Kelly, Marathon Paper Mills Co., Rothschild, Wis.; A. J. Kennedy, Marathon Paper Mills Co., Rothschild, Wis.; A. J. Kennedy, The Sandy Hill Iron & Brass Co., Hudson Falls, N. Y.; Charles H. Kaphart, The York Haven Paper Co., York Haven, Pa.; Martin T. Kermer, Buffalo Foundry & Mach. Co., Buffalo, N. Y.; Conrad J. Kern, The Moore & White Co., Philadelphia, Pa.; W. S. Kidd, E. B. Eddy Co., Ltd., Hull, Canada; Kenneth T. King, E. I. duPont de Nemours Co., Chicago, Ill.; Harry C. Kinne, Bagley & Sewall Company, Watertown, N. Y.; John Knight, Paper Makers Chemical Corp., Holyoke, Mass.; Robert Knowles, Curtis & Bros. Co., Mount Holly Springs, Pa.; Paul Kohlke, International Paper Co., Fort Edward, N. Y.; Edward Kormin, The Heller & Merz Corp., New York, N. Y.; Karl Krug, Du Pont Company, Wilmington, Del.; D. Kuhe, York Haven Paper Company, York Haven, Pa.; Ralph W. Kumler, Bennett, Incorporated, Wilmington, Del.; Jacob Kuss, Michigan Paper Company, Kalamazoo, Mich.

F. C. Ladd, Keith Paper Company, Turners Falls, Mass.; H. T. Latham, Du Pont Company, Chicago, Ill.; John Leishman, C. H. Dexter & Sons, Inc., Windsor Locks, Conn.; Ralph Lewis, Wm. L. Barrell Company, Boston, Mass.; W. J. Livingston, Dexter Sulphite Paper & Pulp Co., Dexter, N. Y.; P. M. Loddengaard, Continental Paper Co., Bogota, N. J.; John Loomis, The Heller & Merz Company, Philadelphia, Pa.; Allen A. Lowe, W. S. Tyler Company, Cleveland, Ohio; Larry Lynd, J. W. Bolton & Sons, Lawrence, Mass.

William F. McClellan, Wind Road, Burnside, Conn.; E. J. McDonnell, Groveton Paper Company, Groveton, N. H.; Frank S. McDonnell, Tileston & Hollingsworth Co., Boston, Mass.; Charles McDowell, McDowell Paper Mills, Philadelphia, Pa.; John M. McGrath, The Case Manufacturing Company, Unionville, Conn.; Hugh J. McKane, Stein, Hall & Company, New York, N. Y.; C. J. McMahon, Wm. E. Hooper & Sons Co., Philadelphia, Pa.; Edward McWhirter, Provincial Paper, Ltd., Georgtown, Ontario; R. G. Macdonald, Technical Assn. of Pulp and Paper Industry, New York, N. Y.; Edward A. MacKinnon, Du Pont Company, Boston, Mass.; William Macklem, Black-Clawson Company, Hamilton, Ohio; James B. Maguire, Bradley McKeefe Corp., New York, N. Y.; Milton J. Maguire, Paper Makers Chemical Corp., Easton, Pa.; Carl Magnus, Standard Paper Mfg. Company, Richmond, Va.; Louis C. Marburg, Marburg Brothers, Inc., New York, N. Y.; Gordon M. Markle, E. I. Du Pont Company, Chicago, Ill.; William A. Marrs, National Vulcanized Fibre Company, Wilmington, Del.; R. B. Martin, Wallace & Tiernan Company, Inc., Newark, N. J.; J. Gilbert Mason, Jr., Edgar Brothers Company, New York, N. Y.; Wm. R. Maull, Dill & Collins Company, Philadelphia, Pa.; M. C. Maxwell, McDowell Paper Mills, Manayunk, Pa.; A. D. Merrill, Chemipulp Process, Inc., Watertown, N. Y.; B. D. Millidge, Howard Smith Paper Mills, Ltd., Cornwall, Ont., Canada; O. J. Mills, The Sandy Hill Iron & Brass Works, Hudson Falls, N. Y.; R. B. Moir, W. A. Jones Foundry & Mach Co., New York, N. Y.; E. J. Monahan, Du Pont Company, Wilmington, Del.; A. J. Monro, Monro, Munson & Jenkins, Buffalo, N. Y.; Donald H. Montville, Shartle Brothers Machine Co., Middletown, Ohio; Charles N. Mooney, The Smith Paper Company, Lee, Mass.; Frank J. Mooney, Smith Paper Company, Lee, Mass.; Geo. W. More, George W. Millar & Co., New York, N. Y.; H. C. Morris, Hercules Powder Company, Wilmington, Del.; C. E. Mueller, Paper Makers Chem. Corp., Kalamazoo, Mich.; J. Linville Mullin, Jessup & Moore Paper Co., Wilmington, Del.; R. S. Murgatroyd, John W. Bolton & Sons, Lawrence, Mass.; S. W. Murphy, International Wire Works, Menasha, Wis.; John A. Murray, Wm. A. Hardy & Sons Company, Fitchburg, Mass.

William C. Nash, Gilbert & Nash, Menasha, Wis.; W. M. Nash, Seaman Paper Company, Chicago, Ill.; Jesse H. Neal, American Paper & Pulp Assn.; G. H. Newcomb, E. I. Du Pont de Nemours & Co., Philadelphia, Pa.; K. A. Newman, E. F. Houghton, Philadelphia, Pa.; N. J. Niks, Chillicothe Paper Company, Chillicothe, Ohio; John Nolan, International Paper Company, Niagara Falls, N. Y.; Geo. R. Northam, Baltimore, Md.; C. H. Noble, Staley

# The Perfect *Fit* — depends upon the *foot*!

Perfection for a prince is poison for a policeman! And veering from shoe vamps to paper mill ventilating. No method or apparatus can report results attained in any one mill as indicating promised performance for all mills. There are times when mills operate under ideal conditions. There are many other times when conditions are decidedly different. Results will vary as conditions vary. When pointing to performance consider the conditions that made the performance possible.

. . . . . .

For over twelve years, ROSS SYSTEMS have proved successful in ventilating paper mills. Our records, like those of other manufacturers, reveal exceptional performance in certain mills under certain conditions. But it is our consistently efficient results that appeal to mill managers more than spot-lighting the spectacular.

## J. O. ROSS ENGINEERING CORPORATION

201 North Wells Street, CHICAGO
Main Office—122 E. 42nd Street, NEW YORK
519 American Bank Bldg., PORTLAND, ORE.

## ROSS ENGINEERING OF CANADA, LIMITED

NEW BIRKS BLDG., MONTREAL

**ROSS SYSTEMS**
HEATING—VENTILATING—DRYING

Sales Corp., Kalamazoo, Mich.; Newton Leroy Nourse, Brown & Company, Berlin, N. H.

John J. O'Brien, The Paper Mill, Boston, Mass.; J. H. O'Connell, The Case Manufacturing Company, Unionville, Conn.; M. C. Osborne, Dilts Machine Works, Inc., Fulton, N. Y.; J. W. Outerson, Paterson Parchment Paper Co., Modena, Pa.; C. R. Outterson, Bennett, Inc., Syracuse, N. Y.;

Robert S. Paugh, W. C. Hamilton & Sons, Miquon, Pa.; E. Peterson, B. F. Goodrich Rubber Company, Akron, Ohio; David Pillar, Wm. Cabble Excelsior Wire Mfg., Brooklyn, N. Y.; Theodore M. Pomeroy, Z. O. W. M. Crane, Inc., Dalton, Mass.; L. D. Post, Publisher, The Paper Mill, New York City; James J. Powers, The Smith Paper Co., Lee, Mass.; Max Poyck, The Heller & Merz Corp., New York, N. Y.

James W. Raines, The Lindsay Wire Weaving Company, Cleveland, Ohio; Marshall W. Ramsey, Wilmington, Del.; Clair Ramsey, Jessup & Moore, Wilmington, Del.; James G. Ramsey, Jessup & Moore, Wilmington, Del.; G. F. Reale, Hooker Electrochemical Company, New York, N. Y.; H. J. Reed, Improved Paper Mach. Corp., Nashua, N. H.; Homer M. Rice, E. I. DuPone de Nemours Company, Watertown, N. Y.; N. Rigabar, National Paper Products Co., Carthage, N. Y.; Wm. Rittig, The Gardner & Harvey Company, Middletown, Ohio; John R. Roberts, Du Pont Company, Wilmington, Del.; C. E. Robinson, Reliance Elec. & Eng. Co., E. Cleveland, Ohio; R. E. Roche, De Laval Steam Turbine Co., Chicago, Ill.; Russell S. Roeller, Pennsylvania Salt Mfg. Co., Philadelphia, Pa.; Fred J. Rooney, Upson Company, Lockport, N. Y.; Robert C. Rooney, The Upson Company, Lockport, N. Y.; R. W. Ross, The Beveridge Paper Company, Indianapolis, Ind.

Victor Salmonson, Canadian International Paper Co., Temiskaming, Quebec, Canada; James Salter, Victoria Paper Mill Company, Fulton, N. Y.; Don Savery, Thos. H. Savery, Jr., Chicago, Ill.; Thomas H. Savery, Jr., Board of Trade Bldg., Chicago, Ill.; Harry F. Schonk, Simonds Worden White Company, Sterling, Mass.; J. Carl Schmidt, Du Pont Company, Philadelphia, Pa.; Hellmuth C. Schwalbe, Dill & Collins Company, Philadelphia, Pa.; Douglas E. Scott, The Adams Bag Company, Chagrin Falls, Ohio; W. H. Scott, The Durion Company, Inc., Dayton, Ohio; R. E. Sears, Shartle Brothers Machine Co., Middletown, Ohio; H. W. Server, Morey Paper Mill Supply Company, Dayton, Ohio; Charles M. Shipway, Wm. E. Hooper & Son Company, Philadelphia, Pa.; Charles A. Shubert, Dill & Collins Company, Philadelphia, Pa.; P. J. Sievert, Marinette & Menominee Paper Co., Marinette, Wis.; William H. Sievert, Michigan Carton Company, Battle Creek, Mich.; Harold Sinclair, Bennett Incorporated, Cambridge, Mass.; Chester Sipe, Oswego Falls Corp., Fulton, N. Y.; Chas. J. Slack, Paper Makers Chem. Corp., Carthage, N. Y.; C. B. Smith, Kalamazoo, Mich.; Harold Smith, J. W. Bolton & Sons, Lawrence, Mass.; James O. Smith, Du Pont & Company, Toronto, Canada; L. E. Smith, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; Ralph M. Snell, Paper Makers Chem. Corp., Holyoke, Mich.; R. W. Smith, Bird Machine Company, South Walpole, Mass.; F. A. Soderberg, Brooklyn, N. Y.; R. J. Sprang, The Champion Fibre Company, Canton, N. C.; Homer E. Stafford, Hawthorne Paper Company, Kalamazoo, Mich.; E. P. Stahl, Hyatt Roller Bearing Company, Newark, N. J.; Howard Stansell, West Carrollton Parchment Co., West Carrollton, Ohio; Stephen G. Stapley, Chemical Paper Company, Holyoke, Mass.; Harvey B. Steele, Curtis & Bro. Co., Newark, Del.; Joseph Stepberger, Continental Paper Company, Bogota, N. J.; Wm. Stericker, Philadelphia Quartz Co., Philadelphia, Pa.; George W. Sterrett, Emerson Mfg. Company, Lawrence, Mass.; R. C. Stewart, Shartle Bros. Mach. Co., Middletown, Ohio; E. I. Stokes, Stein, Hall & Company; Alexander G. Stone, Continental Paper & Bag Corp., Rumford, Maine; Walter J. Sullivan, Du Pont Company, Boston, Mass.; H. M. Sutton, Bird Machine Company, South Walpole, Mass.; P. D. Switzer, Moore & White Company, Philadelphia, Pa.

A. A. Tanyane, PAPER TRADE JOURNAL, New York, N. Y.; A. G. Tatnall, Wm. E. Hooper & Sons Co., Philadelphia, Pa.; Alden R. Taylor, William L. Barrell Co., Boston, Mass.; K. E. Terry, S. D. Warren Company, Cumberland, Maine; E. L. Tewksbury, Stowe & Woodward Company, Newton Upper Falls, Mass.; Horace H. Thayer, Naylor Pipe Company, Chicago, Ill.; Wm. H. Theroux, Williams Gray Company, Chicago, Ill.; L. A. Thompson, Paper Makers Chemical Corp., Holyoke, Mass.; F. J. Timmerman, Northern Paper Mills, Green Bay, Wis.; B. K. Tramaine, Du Pont Dyestuffs Co., Providence, R. I.; Geo. M. Trostel, Champion Fibre Co., Canton, N. C.; J. A. Turner, Du Pont Nemours, Chicago, Ill.

Roy H. Underdown, The Heller & Merz Co., Philadelphia, Pa.

G. W. Van Steenbergh, PAPER TRADE JOURNAL, New York, N. Y.; Roy F. Varble, H. N. Hill & Company, Philadelphia, Pa.

A. W. Waern, Champion Fibre Company, Canton, N. C.; Dick Walters, Sanitary Products Corp., Riegelsville, Pa.; R. N. Watts, Cheney-Bigelow Wire Works, Springfield, Mass.; Edward A. Weissbach, Campbell Company, Camden, N. J.; Lewis G. Weiser, National Folding Box Company, New Haven, Conn.; Fred B. Wells, Ohio Box Board Company, Rittman, Ohio; S. C. Wentz, P. H. Glatfelter Company, Spring Grove, Pa.; Bradley West, J. H. Horne & Sons, Lawrence, Mass.; Harry E. Weston, The Paper Industry Journal, Chicago, Ill.; W. Weston, American Wringer Company, Syracuse, N. Y.; C. R. Whipple, Beloit Iron Works, Beloit, Wis.; J. Bertwell White, National Vulvanized Fibre Co., Yorklyn, Del.; John J. White, Holyoke, Mass.; A. L. Whiteside, M.E., Hill Clutch Machine & Fdry.; Frank A. Whittiger, Ciba Company, Chicago, Ill.; M. M. Whitman, Marathon Paper Mills Co., Rothschild, Wis.; C. E. Whitworth, West Chester, Pa.; Alberon W. Wickham, MacAndrews & Forbes Co., Camden, N. J.; John A. Wiener, Oswego Board Corp., Oswego, N. Y.; Alfred G. Wightman, Knowlton Brothers, Watertown, N. Y.; Harry Williamson, Champion Fibre Company, Canton, N. C.; Lee L. Wilson, Morris Paper Mills, Morris, Ill.; Frank E. Winslow, General Electric Company, Philadelphia, Pa.; Charles Woolacott, International Paper Company, Orono, Maine; G. D. Wyatt, The Paper Industry.

Olen V. Yates, Eaton Dikeman Company, Lee, Mass.; C. E. Youngchild, Nekoosa-Edwards Paper Company, Port Edward, Wis.

D. P. Bailey, Flintkote Company, New York, N. Y.; George A. Zeiss, Jr., Manhattan Rubber Mfg. Company, Passaic, N. J.; A. L. Beals; Raymond N. Burns, Peter J. Schweitzer, Inc., Elizabeth, N. J.; A. M. Cooper, Westinghouse Elec. Co., Philadelphia, Pa.; Jacob Edge, Downingtown Mfg. Company, Downingtown, Pa.; Walter L. Glass, Tolhurst Machine Works, Troy, N. Y.; H. S. Harwood, Samuel M. Langston Company, Camden, N. J.; James N. Mackin, E. C. Atkins & Company, Indianapolis, Ind.; T. F. Martin, P. J. Schweitzer, Inc., Jersey City, N. J.; E. B. O'Connor, Charta Corporation, New York, N. Y.; Ralph W. Shaffer, MacAndrews & Forbes, Camden, N. J.; John R. Sheffield, Jr., The Dorr Company, New York, N. Y.

### Among the Ladies Present

Among the ladies present at the convention were the following:—

Mrs. M. J. Argy, Mrs. Edward Argy.

Mrs. E. N. Bechard, Mrs. J. Coleman Bentley, Mrs. Geo. L. Bidwell, Mrs. Harold O. Bing, Mrs. Alfred Bryant, Mrs. L. H. Breyfogle, Mrs. A. W. Bronle, Mrs. John H. Brougham, Mrs. W. H. Brydges, Mrs. C. Burr, Mrs. Ernest W. Bush.

Mrs. James A. Cameron, Mrs. Thomas A. Cape, Miss Gene Carr—PAPER TRADE JOURNAL, Mrs. H. C. Couch, Miss Croft, Mrs. Wm. Croft, Mrs. Lester W. Crouse.

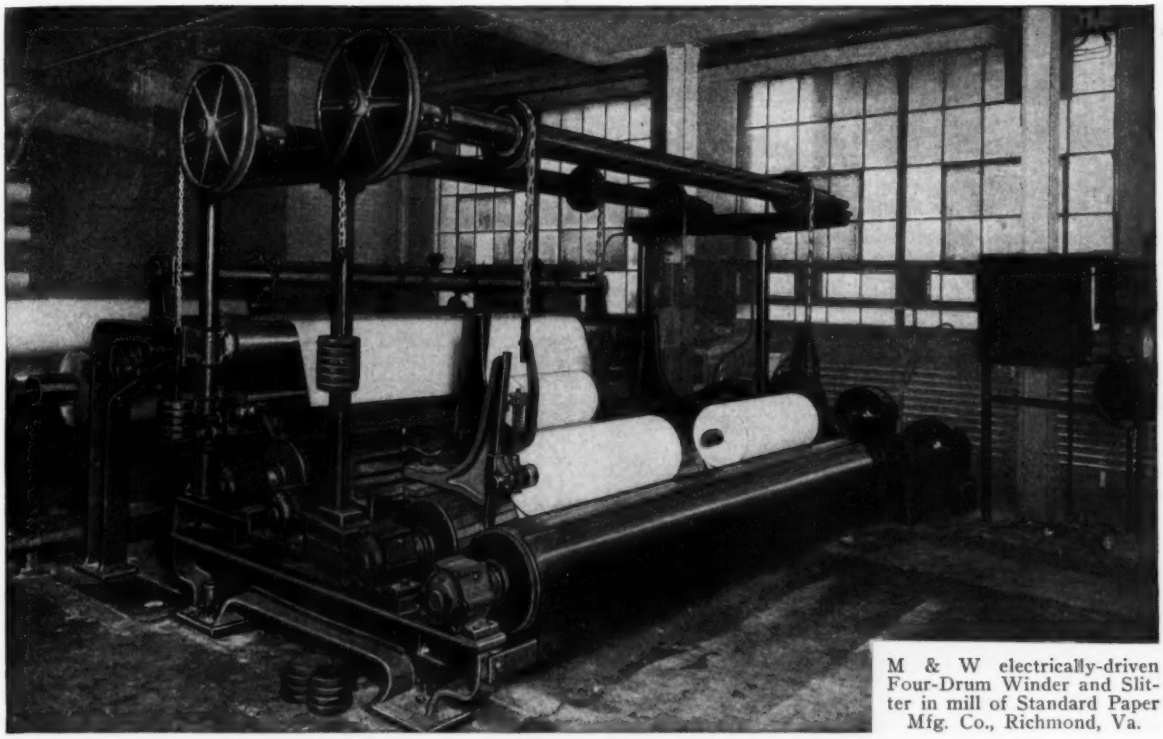
Mrs. Wayne Davies, Mrs. S. Brandt de Farges, Mrs. V. S. Denison, Mrs. Joseph H. Dow, Mrs. Arthur B. C. Drew, Miss Dorothy E. Drew, Mrs. C. F. Duke.

Mrs. C. L. Ellis, Mrs. Robert L. Eminger.

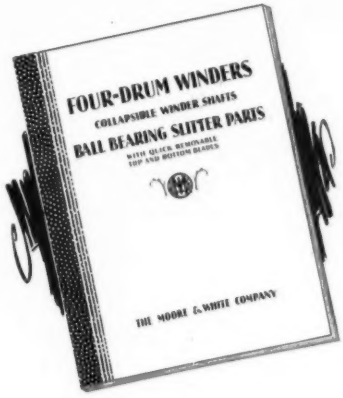
Miss F. C. Farnsworth.

Mrs. F. H. Glanville, Mrs. Jesse Good, Mrs. H. W. Griffin.

Mrs. H. R. Heuer, Mrs. George Hively, Mrs. J. F. Hogan, Mrs. H. F. Hoffmann, Mrs. H. A. Horstmann, Mrs. R. W. Hynes.



M & W electrically-driven Four-Drum Winder and Slitter in mill of Standard Paper Mfg. Co., Richmond, Va.

# Roll Hardness Automatically Controlled

***YES, we still build belt-driven Winders — and good ones! But we consider the Electric Drive a long step forward.***

IN any drum winder, the second or "variable-speed" drum must exert a frictional pull to wind the paper smoothly.

In the M & W electrically-driven Four-Drum Winder this frictional pull is created without the necessity for excess slip, by means of the torque exerted by the "variable" drum motors.

These motors adjust themselves automatically to the increasing weight of the rolls. Their steady pull gives the variable-speed drums the necessary "creep" to draw the paper snug, but without excessive hardness. Once set to suit the character of paper, the regulation is not changed from start to stop of the winding. . . .

The saving in attention required, and the gain in uniformity, are large enough to merit the consideration of every paper mill superintendent.

**THE MOORE & WHITE COMPANY**
*Established 1885*
15th ST. & LEHIGH AVE. PHILADELPHIA, PA.

Mrs. J. A. Inge, Mrs. Thos. Ireland.

Mrs. H. D. Jones, Mrs. James Jones.

Mrs. Lloyd E. Kauffman, Mrs. D. M. Kelly, Mrs. R. H. Kelly, Mrs. C. J. Kern, Mrs. H. C. Kinne, Mrs. Paul Kohlke, Mrs. Robt. Knowles.

Mrs. F. C. Ladd, Miss Isabella A. Leishman, Mrs. John Leishman.

Mrs. Carl Magnus, Mrs. B. D. Millidge, Mrs. J. Linville Mullin, Mrs. E. J. McDonnell, Mrs. F. S. McDonnell, Miss Louise E. McGrath, Miss Katherine McKeever.

Mrs. Jesse H. Neal, Mrs. K. A. Newman, Mrs. M. P. Northam, Mrs. George Northam, Mrs. N. L. Nourse.

Mrs. David D. Piller, Mrs. T. M. Pomeroy, Mrs. L. D. Post.

Mrs. J. W. Raines, Mrs. J. G. Ramsey, Mrs. N. Rigabar, Mrs. F. J. Rooney.

Mrs. J. Carl Schmidt, Mrs. Harold Sinclair, Mrs. L. E. Smith, Mrs. A. H. Stanton, Mrs. H. B. Steele.

Mrs. K. E. Terry, Mrs. A. A. Tanyane.

Mrs. Roy H. Underdown.

Mrs. Fred B. Wells, Mrs. J. Bertwell White, Mrs. M. M. Whitman, Mrs. John A. Wiener, Miss Antoinette Wiener, Mrs. A. G. Wightman, Miss Harriet Wightman, Mrs. Harry Williamson, Mrs. F. E. Winslow, Miss H. C. Woods.

Mrs. C. E. Youngchild.

## George W. Mead Paper Institute Opens

MADISON, Wis., June 2, 1930.—The George W. Mead Paper Institute has been opened here with Burt Williams as executive secretary and John L. Meyer, for the past seven years editor of *National Printer Journalist*, as field director. It is announced that the institute, named in honor of George W. Mead of Wisconsin Rapids, head of the Consolidated Water Power and Paper Company, with a number of print paper and pulp mills in that state, is intended to render practical and helpful service to users of news print, periodical and book papers. The institute is preparing to give counsel service to publishers, particularly in local advertising and circulation matters, to assist newspaper association workers and provide other services in Wisconsin.

On June 19, Mr. Mead will be host at a dinner in Madison to the pilgrimage of the National Editorial Association, following its completion of the 1930 annual convention in Milwaukee, June 16, 17 and 18. The association each year follows its conventions with a tour in the part of the United States where the convention is held. This is the first time the N.E.A. has ever met in Wisconsin, since its original meeting about 48 years ago.

## Heads Production Dept. of Bryant Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., June 3, 1930.—William B. Clements formerly of Holyoke, has been appointed manager of the production department of the Bryant Paper company at Kalamazoo, Mich. This company is now carrying out a program of improvements representing an expenditure of approximately $750,000 which will materially effect a reduction in production costs. Two super calendars have been installed each capable of handling a sheet of paper 154 inches wide. A new finishing room has begun operation. Mr. Clements was formerly with the American Writing Paper Company and later with the Fitchburg Paper Company of Fitchburg.

## Fatally Injured in Rag Room

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., May 13, 1930.—John Gouin, 44, of 544 South Bridge street, received injuries last Wednesday afternoon while working about a duster in the rag room of the Valley Paper Company that resulted in his death at the Holyoke Hospital a few hours later. He received fractured ribs, lacerations over one kidney and suffered from shock.

## Recent Decisions on Paper Imports

Customs officials have taken action favorable to the domestic paper industry in several cases in which the Import Committee of the American Paper Industry has been active. Japanese silk wall hangings were held dutiable at 60 per cent as manufactures of silk, instead of wall paper at 1½ cents per pound and 20 per cent as claimed by the importers. Imitation hand made paper is being held subject to 10 per cent additional duty because of its decoration with laid lines. Stencil tissue paper is now being held dutiable as paper not specially provided for at 30 per cent, instead of as coated paper at 5 cents per pound and 20 per cent as claimed by the importers, who say the paper is coated not saturated. Special drawing paper is being held dutiable at the United States value, because made specially for the American market, and in addition is subject to 10 per cent additional duty for special finish.

Importers who had protested to the Customs Court against rates of duty levied by custom officials have abandoned their efforts in cases involving these shipments of papeterie, one of suit case board, two of filter paper and one of fancy paper.

Imported paper napkins are being held at 35 per cent as manufactures of paper, instead of a lower rate of duty as tissue paper.

An importer of fancy drawing paper is endeavoring to have his shipment classified for duty as box board, at 10 per cent, but the customs officials held it to be dutiable at 3 cents per pound and 25 per cent.

Thirteen importations of envelopes for lithographed greeting cards are claimed by the importer to be free of duty as the customary container for lithographic merchandise. The customs officials, however, held the envelopes to be dutiable as envelopes made of writing paper.

## Paper Demand Slow in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 2, 1930.—Little change is noted in the paper market here. Volume of business is considerably curtailed with few prospects for an increased volume until fall at least. Such orders as are being received call for small lots and indicate plainly that the consumers are buying only from hand to mouth. Credit conditions also are in a poor way and local jobbers are finding it as difficult to collect accounts as it is to sell paper. The cost of handling accounts is mounting all the time because of delays and time spent on collections.

In only two lines have there been any increases noted. The demand for specialty articles for the summer, such as drinking cups, paper plates, napkins and similar merchandise, showed some increase during the last week. The volume does not compare favorably with that of last year, however. The other item is for glassines and cellophanes, both of which are having a fair sale largely because of new uses to which they are being put.

Demand for the more common grades, such as wrapping paper seems to be about stationary, but the volume is a little greater in proportion than in most other paper lines. Prices also are firm. Krafts are firm in price and it is the belief here that they have about reached the bottom. There is less inclination to offer concessions on these grades than there has been for some time.

## Not To Close Union Bag Hydro-Electric Plant

HUDSON FALLS, N. Y., May 26, 1930.—Rumors that the three hydro-electric plants of the Niagara Hudson Power Corporation recently acquired from the Union Bag and Paper Corporation were to be closed have been denied by officials. It had been reported that employees had been notified to seek other positions but these rumors also proved without foundation. It was announced that all plants will continue to operate at full capacity and a portion of the power wasted while under control of Union Bag will also be utilized in the future. The paper company is now securing its power for operating purposes under lease terms.

# LESS WEB BREAKS ON CAMACHINE WINDERS

One of the vitally important factors in favor of the Cameron principle of slitting and winding is that the whole web passes almost to the point where it is wound, before the slitting is done. Naturally there is no chance for the separate sections of the web to get into difficulty which is apt to be the case when there is a long draw between the slitters and the winding drum, a system employed in other types of winders.

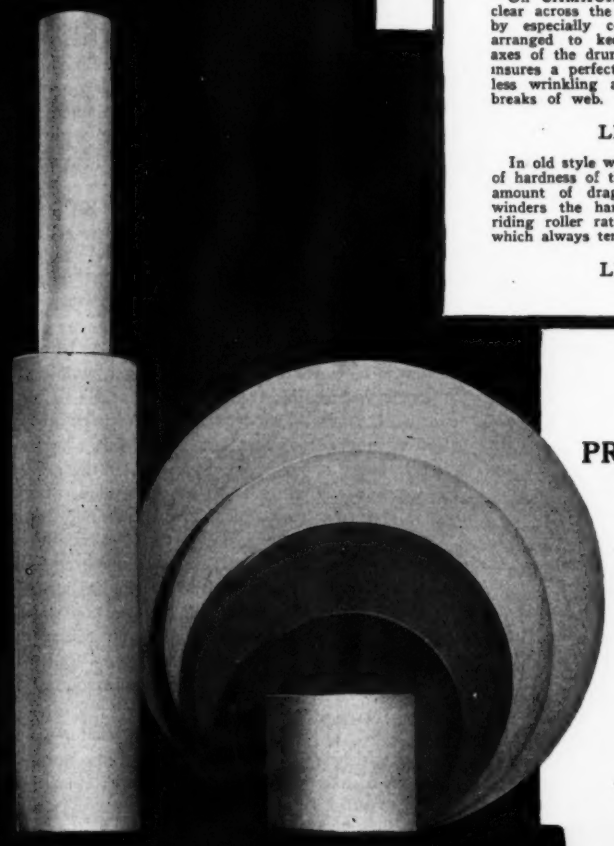
LESS WEB BREAKS

On CAMACHINE winders the winding shaft extends clear across the machine and is supported at both ends by especially constructed journal bearings, which are arranged to keep this shaft always parallel with the axes of the drums as the rolls build up. This provision insures a perfectly cylindrical roll, which in turn insures less wrinkling and unnecessary strains with consequent breaks of web.

LESS WEB BREAKS

In old style winders without the riding roller the degree of hardness of the rolls depends almost directly upon the amount of drag on the web. With CAMACHINE winders the hardness of the rolls is regulated by the riding roller rather than by heavy tension of the sheet, which always tends to weaken the strength of the sheet.

LESS WEB BREAKS



NO LOSS OF PRODUCTION

CAMERON WINDERS INSTALLED AT WEEK END

CAMERON MACHINE CO.

61 POPLAR ST. BROOKLYN, N.Y.

# New York Trade Jottings

E. A. Pierce & Co. announce their removal from 11 Wall street to 40 Wall street, New York.

* * *

Frederick J. Jahn, secretary of the Swedish Pulp and Paper Association, with headquarters at Stockholm, arrived in New York this week, after attending the meeting of the International Committee on News Print at Montreal, Que.

* * *

The James P. Heffernan Paper Company, of 25 Water street, New York, announce that the president and vice-president having resigned, the Board of Directors have appointed L. Oscar Lay as general manager and David Bove as assistant. The Lay Paper Company, Inc., of 11 Broadway, New York, whose officers will manage the James P. Heffernan Paper Company, will continue to work as heretofore and in closer harmony with the latter concern.

* * *

Frank P. Lyden, for many years connected with the International Paper Company, and more recently associated with Fraser's Ltd., Madawaska, Me., has opened offices at 152 West 42nd street, in the Knickerbocker Building, New York, as a consulting engineer for pulp and paper mills, specializing on bond, waxing, rotogravure. kraft, and ground wood specialties. In view of Mr. Lyden's vast experience his services should prove valuable to those confronted with manufacturing problems or who contemplate erecting new mills.

* * *

Richard T. Stevens, president of the Japan Paper Company, recently sailed for Europe where he will make a tour of the various mills making Japan Paper Company's papers. During his stay abroad Mr. Stevens will visit the English paper mills, including those of Portals, Ltd., historic for making the currency paper for the Bank of England for many years. In Italy a visit will be made at the Miliani Mill, Fabriano, a plant which has been making paper continuously since the 13th century. Many other mills on the continent will also be visited.

## Notes of the Northwest Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., May 1, 1930.—The Bates Valve Bag corporation has opened offices in the Joseph Vance building, Seattle with Ray Brown as manager, and from his headquarters will handle the Northwest territory of the company.

E. G. Drew, representing J. O. Ross corporation, John Waldron Corporation and Nichols Products corporation, Portland, Oregon, has removed his offices from the American Bank building to 311 Lewis building effective June 1.

P. J. Pannier of the Patten Paper Co., Appleton, Wis., has been spending some time on the west coast.

Elon H. Hooker, president of the Hooker Electro-Chemical company, has purchased a tract of 255 acres in Oregon at the mouth of Silver creek on the Rogue river, with a frontage of one-fourth mile on the river, where he plans to build a palatial summer home. While in the west recently in connection with affairs of the Tacoma plant of the company, Mr. Hooker visited the southern Oregon region and became fascinated with the wild beauty of the place and the possibilities of a country estate which would provide natural recreational features.

The book paper mill of the Cascade Paper Company, Tacoma, Wash., has closed and officials have as yet made no statement regarding a return to operation. The capacity of the plant is 50 tons.

## Oregon Pulp and Paper Co. to Build

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., May 24, 1930.—The Oregon Pulp and Paper Company, Salem, announced last week that plans were prepared for a two-story concrete addition to its plant which will cost $60,000.

## Unloading Pulpwood on the Hudson

[FROM OUR REGULAR CORRESPONDENT]

GLEN FALLS, N. Y., June 2, 1930.—Announcement was made this week at the barge canal terminals here that transportation companies doing business over the water route had been in communication with authorities relative to obtaining information on the unloading facilities for pulpwood. Information regarding the hauling distance from the local terminal to the South Glens Falls Mill of the International Paper Company was also sought from the New York offices of these firms and this move is also believed to have some bearing on the big shipment of pulpwood for the firm scheduled to arrive at Albany during the early part of next month. Both the Corinth and South Glens Falls mills use the product in the manufacture of news print paper.

A number of shipments of pulp scheduled to arrive at Albany will be transferred from the boats to railway cars for shipment here but the queries received have given the impression that a water route to the Fort Edward terminal is being considered. The plans of the terminal officials in this city are said to call for the operation of considerable new electrically driven equipment in handling the huge shipments of pulpwood from Russia scheduled to arrive here for the International Paper Company within a few weeks.

It was also learned that several boats loaded with pulp consigned to the Union Bag and Paper Corp. and Finch, Pruyn & Co. arrived at the terminal here this week and a large force of stevedores is moving the cargo to trucks for final shipment. The latter concern is now busy in filling a chartered vessel with news print for shipment to the Metropolis.

## Changes at Hudson Falls Mill

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., June 2, 1930.—A reorganization of the executive staff of the Union Bag and Paper Corp. was effected this week and a number of promotions were also made. Thomas R. Remsen has tendered his resignation as general manager and it was announced that the position would be abolished. However, Harvey T. Cornell, assistant manager, will in the future fill the position vacated by Mr. Remsen with the title of business manager. True M. Avery, of Glens Falls, has been promoted to the position of manager of factories, succeeding Charles D. Sanders. The latter retired about a year ago. Under the new arrangement John T. Gamble will continue as superintendent of the mills here.

Mr. Remsen has been connected with the mills here for many years and enjoys a wide circle of friends. Before coming to this place he was identified with a mill at Three Rivers, Canada, in a similar position. It was learned that he has already accepted a position as superintendent of the construction of a large paper mill and hydro-electric plant. Although no change in the operation of the mills here will be made it was stated that a definite announcement concerning them would be made soon.

## Federal Forests Assured

Wisconsin is assured federal forests totalling 151,680 acres through a vote of the National Forest Commission, Washington, D. C., to purchase this amount. This removes the last possible barrier in the purchase and all the options will now be taken up. The tracts include 26,880 acres in Oneida County, 17,280 acres in Vilas County, and 107,520 in Forest County. In addition the government also has title to 44,000 acres in what is known as the Moquah National Forest. Although some tree planting will be done this year on cut-over or burned over portions of the forests, the main efforts will be concentrated on fire prevention. Roads, fire lanes and trails will be built so the forest rangers will have easy access to any area where a fire starts. Lookout towers will be built at various intervals and telephone wires will be strung. Three nurseries are to be started. The work is in charge of E. W. Tinker, United States Forester for the Wisconsin-Michigan-Minnesota district.

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## FOREIGN TRADE IN PAPER

Exports of paper and paper products from the United States during the month of March were valued at $2,860,624, a decrease of 17 per cent compared with the corresponding month in 1929, while the total for the quarter—$7,622,385—shows a decline of 15 per cent compared with the corresponding period last year, according to the Paper Division of the Department of Commerce. The decrease in this year's trade so far has been due to the particularly heavy reductions in a few of the leading items, such as surface-coated paper, which dropped off 60 per cent, news print and writing papers, which declined by 30 per cent, and paper boxes, which were 35 per cent under the 1929 shipments. Of the remaining items, about one-half show an increase in the volume of shipments over those of the first quarter of 1929 while the remainder show a reduction.

Book paper shipments were slightly heavier in volume, although the aggregate value of these shipments declined by 5 per cent. Exports of over-issue newspapers, which are used in the Far East as a wrapping paper, increased by 3 per cent, while exports of other classes of wrappings, exclusive of greaseproof, increased by 11 per cent. Box board shipments were 20 per cent above those of the corresponding quarter last year, but this gain was offset to some extent by a decrease of 12 per cent in shipments of other classes of paper boards.

Exports of the various classes of building papers were on the whole lower than last year, with the exception of fiber insulating lath and board, which increased by nearly 200 per cent. A heavy decrease in this group, which served materially to bring down the total value of the shipments, was that registered in "other paper and paper products." Items entered under this classification during the past quarter were valued at only $1,217,326 as against $1,794,344 last year.

Exports of paper base stocks from the United States during the quarter ended March 31, 1930, reached an aggregate value of $790,465, a decrease of 50 per cent compared with the first quarter of 1929. The bulk of these shipments were made up of sulphite pulp valued at $339,349 and rags and other waste stock valued at $263,283. Exports of the former item show a reduction in volume from 11,905 tons to 6,059 tons and of the latter from 14,492 tons to 7,932 tons.

Imports of paper and paper products also decreased during the first three months of the year, the aggregate value showing a reduction of $1,658,056, or nearly 5 per cent. This decline, however, is due in a large measure to the fall in receipts of standard news print, which represent between 85 and 90 per cent of the total incoming shipments. Receipts of this particular item during the first quarter of the year amounted to 482,384 tons valued at $31,472,278 as against 486,791 tons and $33,450,537 during the first quarter of 1929. Imports of other classes of paper and paper products show an increase in aggregate value from $4,336,012 to $4,656,215. Imports of greaseproof and waterproof papers, kraft wrappings, writings, tissue papers and cigarette papers and also pulp and papier mache wares were in excess of those recorded for the first three months of 1929, while reductions were registered in surface-coated papers, boards and paper boxes.

Imports of paper base stocks into the United States during the first quarter of the year reached an aggregate value of $31,933,141, an increase of approximately 25 per cent compared with the corresponding period last year. Imports of pulpwood, which were valued at $3,755,109, increased by nearly 20 per cent.

A considerably greater increase was registered in importations of wood pulp of various kinds, which had a total value of $25,218,502 for the first quarter as compared with $19,666,732 during the first three months of last year. The most outstanding increases occurred in receipts of mechanical ground wood and unbleached sulphate (kraft) pulp, which show gains of 68 per cent and 53 per cent, respectively. Imports of sulphite pulp were also considerably larger than in 1929, the amount recorded for unbleached sulphite having increased by 25 per cent and for bleached sulphite by 12 per cent.

Imports of rags and other waste stock for paper-making was slightly above similar imports during the first quarter of 1929. Rags represent the bulk of this class of receipts, imports during the first quarter of the current year having totaled 43,997 tons valued at $1,988,553, an increase of 6 per cent over the corresponding period last year.

## WARNS AGAINST PESSIMISM

Warning against an excess of pessimism is sounded by the National City Bank of New York in its monthly review of business. Pointing out that an excess of optimism was the basis of danger a year ago, the bank says:

"Last year a great many people could see no limit to the possibilities for expansion; now, some of these same people seem to have lost all confidence in the country's capacity for recovery. Undoubtedly the one viewpoint is as unwarranted as the other. It is true that the situation is not without serious complications, including the world-wide scope of the reaction, the fall in commodity prices and accumulation of stocks of raw materials. We do not wish to minimize these difficulties, but we are impressed with the recuperative powers of the country as demonstrated repeatedly in the past."

So long as prices are falling it is natural for buyers to hold off both because of lack of confidence engendered by the fall and be-

cause of a desire to buy at the lowest possible levels, the bank says. It continues as follows:

"During this period of suspended activity stocks pile up in the hands of producers or primary distributors, where they acquire an exaggerated significance by reason of their being in the show window of 'visible supplies.' Once, however, prices are believed to have touched bottom and buyers who have been holding off come in to replenish their depleted stocks; it is often surprising how quickly the bugaboo of excessive stocks is dissipated.

The condition of general business, according to the review, has continued unsatisfactory during May, and business men, who have been hoping for a definite turn in the situation, have had to reconcile themselves to further waiting. The bank says:

"Business, indeed, has shown a progressive increase in activity as compared with the early months of the year, but this has to be viewed in the light of the normal seasonal tendency which is always upward during the Spring. When allowance has been made for this seasonal factor it is not clear that much in the way of general business improvement can yet be claimed."

The review calls attention to joint responsibility of all classes during the period of readjustment through which business is passing and says:

"Nowhere is this realization of the joint responsibility for maintaining stability in industry more imperative than in the relations between labor and capital. There is an obligation upon both to have regard for the public welfare and to work in good faith and willing cooperation to secure the largest and best results. Moreover, this policy involves no sacrifice to either party."

## Brotherhood Signing Wage Agreements

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., June 2, 1930.—Officials of the International Brotherhood of Papermakers have returned from the West where they conducted negotiations with the Great Lakes Paper Company relative to the signing of new wage scales in the units controlled by the Backus group. No settlement was effected although it was learned that representatives of other union organizations are still at that place trying to make an agreement. The Union Bag and Paper Corp. is believed to be the only other concern which has not yet signed agreements with the local union although the delay is understood to have been caused by reorganization plans. It was also announced that the work of organizing locals in different sections of this country and Canada is progressing rapidly.

## Swedish Pulp Market Dull

Conditions in the Swedish wood pulp market have shown little change in the past month, according to opinions expressed in unofficial reports received here. The strong sulphite market has been particularly dull with a tendency to weakness in price. As somewhere in the neighborhood of 80 per cent of the 1930 production has already been sold and no great increase in output is anticipated, the market should have no great difficulty in regaining stability. Conditions in the strong sulphite market have influenced the bleached and easy sulphite markets and buyers have shown a reluctance to commit themselves. In the strong sulphite market sales have been limited with prices showing a tendency to decline.

## Paper Index Number Lower

WASHINGTON, D. C., May 28, 1930.—The April wholesale price index number for paper and pulp was 86 compared with 87 for March and 87.8 for April of last year taking 1926 at 100 according to the Department of Labor.

## Canadian Pulp and Paper Exports Decrease

Exports of wood pulp and paper from Canada in April were valued at $12,199,194, according to a report issued by the Canadian Pulp and Paper Association. There was a decrease in value from the previous month of $5,967,100 which is usual for the month of April.

Wood-pulp exports for the month were valued at $2,631,122 and exports of paper at $9,568,072 as compared with $4,704,595 and $13,461,699 respectively in the previous month.

Shipments of the various grades of wood-pulp and paper for the month of April 1930 and 1929 were as follows:

| | April, 1930 | | April, 1929 | |
|---|---|---|---|---|
| PULP: | Tons | $ | Tons | $ |
| Mechanical | 7,717 | 216,190 | 11,763 | 342,652 |
| Sulphite bleached | 18,205 | 1,340,788 | 18,146 | 1,424,190 |
| Sulphite unbleached | 14,646 | 718,391 | 14,174 | 708,957 |
| Sulphate | 5,352 | 312,165 | 10,531 | 627,837 |
| Screenings | 1,349 | 22,566 | 2,924 | 51,714 |
| All other | 353 | 21,022 | ..... | ..... |
| | 47,622 | 2,631,122 | 57,538 | 3,155,350 |
| PAPER: | | | | |
| News print | 159,802 | 9,199,882 | 162,381 | 9,747,536 |
| Wrapping | 1,298 | 136,301 | 714 | 79,392 |
| Book (cwts.) | 3,001 | 28,690 | 4,276 | 33,799 |
| Writing (cwts.) | 278 | 2,074 | 1,763 | 14,735 |
| All other | ..... | 201,125 | ..... | 238,485 |
| | ..... | 9,568,072 | ..... | 10,113,947 |

Pulp and paper exports for the first four months of the year amounted to $59,919,763 as compared with $63,062,391 in the first four months of 1929, a decline for the current year of $3,142,628.

Wood-pulp exports for the period were valued at $14,826,371 and exports of paper at $45,093,392, as compared with $14,013,625 and $49,048,766 respectively in the first four months of 1929.

Details for the various grades are as follows:

| | 4 months, 1930 | | 4 months, 1929 | |
|---|---|---|---|---|
| PULP: | Tons | $ | Tons | $ |
| Mechanical | 62,957 | 1,852,451 | 51,551 | 1,403,197 |
| Sulphite bleached | 97,246 | 7,249,267 | 87,846 | 6,707,548 |
| Sulphite unbleached | 70,388 | 3,504,462 | 59,351 | 2,966,742 |
| Sulphate | 35,818 | 2,037,441 | 46,173 | 2,767,300 |
| Screenings | 8,883 | 161,729 | 8,751 | 168,838 |
| All other | 353 | 21,022 | ..... | ..... |
| | 275,645 | 14,826,371 | 253,672 | 14,013,625 |
| PAPER: | | | | |
| News print | 748,031 | 43,146,636 | 776,064 | 46,949,419 |
| Wrapping | 4,996 | 527,410 | 5,206 | 568,324 |
| Book (cwts.) | 14,378 | 135,657 | 27,667 | 226,386 |
| Writing (cwts.) | 753 | 6,913 | 3,005 | 25,287 |
| All other | ..... | 1,276,776 | ..... | 1,279,350 |
| | ..... | 45,093,392 | ..... | 49,048,766 |

Exports of pulp-wood for the four months totalled 447,079 cords valued at $4,106,830 as compared with 399,872 cords valued at $3,575,602, exported in the first four months of 1929.

## Sue To Recover on Stock

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., May 31, 1930.—The defunct Northwestern Pulp and Paper company, which was to build a plant in Astoria, Ore., but which has been in financial difficulties, and its, directors, have been named defendant in a suit filed at Oregon City, May 23, by C. Schuebel, local attorney, to recover $500 paid for stock in the concern and also a judgment of $100 assigned to him by Louis Funk, who purchased stock. The outcome of this action which is a test case, is awaited with interest by other stockholders. In case of a favorable decision for the plaintiff two other suits aggregating $100,000 will be filed by Oregon City stockholders.

In promoting this enterprise at Astoria, it was stated that not more than 20 per cent of the proceeds of the sale of stock was to be used for operating the mill and 80 per cent was to be held in deposit and returned to the investors if the mills were not constructed or operated. The mill was not built and the money was not returned according to charges in the suit just filed. The promotors and directors of the mill it is said collected $250,264.66 from the sale of preferred stock and $39.17 is said to be all that remains, according to complaint of stockholders who reside in all parts of Oregon.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

# Reminiscences of a Ground Wood Man*

By Michael J. Argy[1]

When Mr. William Brydges of your committee asked me to read a paper on the making of ground wood, I wrote him that while a great deal has been written and a great many theories advanced on this subject, the best method of grinding wood is, I believe, yet to be found.

I have had some thirty years' experience in various ground wood mills, have seen and used different methods of grinding, and am obliged to admit that we are still at the mercy of the man who sharpens the stone, for I have never found a hard and fast method you can set for him to follow. You have to rely on his judgment, take the pulp he furnishes and do the best you can with it on the paper machine.

Many years ago, I remember, the method of sharpening the stones was to take them out of the grinders and chip the grooves in the stone, similar to the method used in sharpening mill stones for grinding corn, wheat, etc. In those days there were no hydraulic grinders, the old Voelter grinder imported from Germany was the only one obtainable and the method of pushing the wood against the stone was by a screw feed.

### First Hydraulic Grinders

The first recollection I have of the hydraulic grinders was in Turners Falls, Massachusetts, in the old Montague mill. They were among the first of the hydraulic grinders invented by Warren Curtis, Sr., and were about the first real improvement in the grinding of pulp. In those days the pulp was ground very thin, washed off the stone with large amounts of water and it was hard and tinny; and if it were not for the fact that they used large percentages of cotton waste and rags instead of sulphite which was unknown at that time, the paper would have been too hard and brittle for good printing.

About the year 1880 a man from Rochester, New York, invented a grinder which ground a great deal more pulp than any grinders used up to that time. He induced the Montague people to try one. He mired his stone in the grinder pit, heated the pulp to a high temperature which really was the reason it produced more pulp. The superintendent of the plant was an observant gentleman. He liked the pulp so well that he began investigating why it was better and why they made more of it than with the Curtis grinder; so he put a dam in front of the pit, mired the stone and shut off the water so as to increase the temperature. He found he could grind more pulp on the Curtis grinder after doing this than with the other type. The consequence was, the Rochester party lost a sale. That was the first knowledge we had of increasing the production by thickening the pulp and increasing the temperature. Another good feature about this grinder that I believe was new, was the method of sharpening. They used a lathe on the back of this grinder, operated with a hand screw, thereby keeping the stone absolutely true without any ruts. This was also a great improvement.

Previous to this and in a great many mills a long time afterwards, the method of sharpening was to install a burr on a long lever with a fulcrum close to the stone, and a man would get on the end of the lever and press the burr against the face of the stone. The consequence was that the stone would become ridgey and full of ruts. It looked like a washboard, having a tendency to make large slivers. The Montague people hooked up their Curtis grinder with this lathe arrangement which made a vast improvement in the quality of the pulp.

### The Right Burr

About every pulp man you run across has his own ideas about the best kind of burr to use for sharpening the stone. Some like a diamond cut burr, others a straight chisel tooth burr; again others a diagonal burr with from one to two inch lead, also the threaded burr. There is a difference of opinion about the number of cuts per inch. Some making good pulp with six cuts to the inch; others up to fourteen and strange to say, properly used, they all get about the same results. At the present time we are using on our Voith grinders at the Cliff Mill a No. 2 straight cut chisel tooth burr and follow it up with a No. 12 diamond point burr to get a fine cutting surface. The reason we use the No. 2 is to crease the stone to allow the pulp ground by the fine points on the stone to get into the creases, and not regrind as the stone turns over in the wood.

I might state here that along about the year 1882, my father and I visited a little mill in northern Vermont at a place called Lyndonville. Here we saw some of the finest ground wood made I have ever seen before or since. They had four or five pulp stones of a very peculiar design which were about five feet in diameter outside and about three feet inside, set on the floor stationary like a tub with a perpendicular shaft running up through the center of the hole in the stone. Attached to this shaft were impellers rapidly revolving the wood against the inside face of the stone. After the stone had run a while the operator stopped the machine, filled up the pockets and started again. The wings were revolving at a very high speed. I do not remember the exact rate. They depended entirely on centrifugal force to rub the fibers off of the wood blocks. Before inserting the wood in the grinder, they soaked it in hot water which softened it considerably. The pulp was so tough and strong that the men in cutting off the laps had great difficulty driving the stick into the sheet. I have seen a great deal of sulphite since that was of no better fiber than that pulp. The pulp was not darkened by the hot water treatment. This pulp mill was owned by a man named Wilder who afterwards

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Philadelphia, Pa., May 29-31, 1930.

[1] Superintendent, Cliff Paper Co., Niagara Falls, N. Y.

or about that time, built a mill at Olcott, Vermont, now called Wilder. He carried out his theories in grinding pulp to some extent by putting in vertical grinders with pockets and hydraulic cylinders on the outside. The pulp was washed off the stone immediately upon being ground; but he didn't make any such pulp as he did with the old type at Lyndonville. This was the only mill I ever knew which used this type. It apparently was not a success.

### European Practice

Two years ago I took a trip to Europe. There I visited the Voith plant at Heidenheim, Germany, manufacturers of pulp and paper machinery. It was here that the first pulp grinder invented by Voelter was manufactured. I saw there the old blue-prints of the original grinders; and was told that originally, the grinders were not intended for the purpose of making ground wood for paper making. Voelter's idea was to convert the pulp into different articles by pressure, such as, chairs, tables, etc. The first pulp made by Voelter was manufactured by rigging up an ordinary grind store to power and the blocks of wood were held on the stone by hand. In a museum at Heidenheim there are some samples of this pulp and also samples Voelter made on his screw feed grinders. You cannot handle this pulp as it is encased in glass, but to the eye, it looks fully as good as any pulp made today. I also saw the blue-prints of the first ground wood mill the Voith people built for one of their customers in Germany along about 1867! and singular to relate, with the exception of our two magazine grinders, our layout at the Cliff is almost an exact duplicate.

Getting back to grinding pulp, my experience has been that the greatest efficiency in grinding is obtained in thickening up the pulp so as to maintain a temperature of about 160 to 180 deg. F. at the grinder pit. At least this works out in our case.

### Magazine Grinders

In 1911 we installed the first magazine grinders. We had considerable trouble with the stones breaking, and it had us puzzled to find the cause. The sharpening lathe on the Voith grinder is in a recess over the stone, operated hydraulically, and the exhaust from the sharpening device was piped so as to strike against the stone and the cold water used in operating the lathe coming in contact with the hot stone caused some of the trouble. Since eliminating this our conditions have improved; although we have had one or two cracked stones since. We immediately discarded the first stone which cracked on us, but later on when they cracked quite often, we decided to take a chance and use them as there was no possibility of the stone leaving the flanges as they are concave. One of these stones after cracking lasted seventeen months.

Our stones are 52 inch face, 67 inch in diameter. We run them at a speed of 214 revolutions per minute. The first ten years they operated, our average cost per stone was $700.00. The actual stone cost per ton of paper was 12½ cents. I haven't figured out our stone cost recently, but since the cost of the pulp stone has advanced about twice that figure, it is pretty good evidence that our cost is running about 25 cents per ton at the present time, which I think is due principally to the low speed of the stones. Most of the trouble experienced in the breaking of stones in the magazine grinders is no doubt due to the high speed most of them are running. In fact most of them had to reduce to 62 inch diameter against our 67 inch, in order to lessen the peripheral speed.

### White Water on Stones

I have noticed since I began using white water on my stones instead of fresh water, a great improvement. My showers on the stones are directly on top, and for many years I used fresh water in them. Later on we began using white water from the deckers which is of a much higher temperature than the fresh water from the filter plant. To my surprise we do not have to sharpen the stones as often. This may be a very far-fetched theory, but my explanation of this is, that the cold water striking the fine points made by the burr on the stone caused them to explode, thereby dulling them off; just as the cold water broke the stones originally. But I do know that we are getting better pulp with less sharpening. This is a point you might consider.

There is another thing in connection with Voith's outfit I think worthwhile. There isn't a sliver or a stick of any kind rejected from the ground wood mill. The coarse blocks and fine, feathery slivers taken out by the bull screen are rammed by a stick into the magazine grinder, thereby taking care of all the coarse materials. The tailings from the Rotary screens are dropped by gravity to a Voith refiner operated by a motor using about 25 to 30 h. p. which takes care of all the fine slivers.

Regarding the refining of tailings, we generally have the wrong idea that you can take the tailings from a screen, run them through a refiner and get marketable pulp the first time through. I don't believe this can be done. In our case the tailings go through the refiner down through the bull screen and are pumped back through the rotary screens again with the magazine pulp. There is no question but what some of the coarse slivers have to make several trips through the system before they are refined enough to go through .065 plates in the rotary screens. We do have a closed system, and get all there is in a cord of wood.

I stated in the beginning that we have no specific standard for our grinder man to follow in sharpening the stones. I will qualify this somewhat by saying that the freeness tester is a great help as is also the blue glass, but there is so much liability to error that a man has to use good judgment in their use. I think one of the best methods I ever saw, was the lantern slides used by the Finch-Pruyn people at Glens Falls, New York. They throw a magnified picture of the fibers on a dark background; but like the use of the microscope a man has to learn how to read his results by a careful comparison. I don't know whether they are still using this method there now or not.

On the whole I believe a man can tell by the sense of touch and sight as much as any instrument so far in use can give him. I claim, I myself can run my hands through pulp, examine it by sight carefully, and tell all that any instrument can tell me. I can't tell you how to do it. If you can do it, you can't tell me, but you know you can. It is not a science. It is an art that you acquire by long practice. When you have a man who has acquired this art in your ground wood mill, use him kindly, pay him well. It means good runs and good paper.

### Semi-Chemical Process Predicted

Gentlemen: I have been giving you so far in this paper mostly ancient history, with which most of you are familiar. You know us old fellows are prone to dwell in the past.

I will try to make some predictions as to the future. As most of you know, our friend, William Brydges, has recently obtained a patent on a process of chemically treating and cooking his pine wood, thereby softening it up before grinding. By doing this I understand he is making paper without the use of sulphite; fully as strong and even better for his paper. I congratulate him for his progressiveness, but I believe he could have gone further.

You are all familiar with the use of the drum barker, how it removes the bark from the wood by rubbing of the logs against each other, with small power consumption. I believe the grinders of the future will be somewhat along these lines, chemically treating and heating the wood to soften it; running it through a rod mill or some similar machine, possibly using Carborundum rollers; using the friction of the rods and the wood itself to do the defibering. It may be necessary to use some kind of a bleaching chemical to make the pulp white. I believe this would be possible. There is one thing sure, your fibers would not be all cut up and reduced to flour; and the saving in sulphite used, would more than compensate in time for the steam and chemicals used; and a possible saving in power. This may be only a dream, but dreams sometimes come true!

We have on our office wall a pencil sketch drawn by a young student of pulp making who worked in the Cliff mill in the year 1883. At that time it was considered one of the up-to-date pulp mills in the country.

# The Chemipulp Process

By A. D. Merrill[1]

Briefly, the Chemipulp process is a method of recovering the relief gases and liquors from sulphite digesters without cooling and is accomplished by interposing a pressure vessel, which we call an acid accumulator, between the acid storage tanks and the digesters. This vessel is partially filled with acid from the storage tanks at an average temperature of 25 deg. C. and the relief liquors and gases are brought into this acid accumulator near the bottom of same and contacted with the liquor in the acid accumulator. This results in a higher recovery of the $SO_2$ content in the gases and liquor, at the same time, heats up the liquor in the acid accumulator to an average temperature of 75 deg. C.

Believing that operating results obtained by the Chemipulp process are of more interest than theoretical assumptions, tables I, II and III have been prepared from actual mill records.

In order to arrive at more accurate conclusions, I have divided the mills operating the Chemipulp process into two groups, the first group including those mills which formerly operated by some other process, and the second group including new mills that started up operating by the Chemipulp process.

Table III which is a composite tabulation of results from all mills operating by the Chemipulp process was also made up to give a general picture of the average results obtained. It is realized that average results of all mills as given are not applicable to any particular mill, however, it does have its place for purposes of comparison.

TABLE I

| | | Old Method | Chemipulp | Savings Per Ton |
|---|---|---|---|---|
| Steam | pounds per ton pulp | 6452 | 4574 | 1878 |
| Sulphur | " " " " | 284 | 244 | 40 |
| Limestone | " " " " | 391 | 407 | 84 |
| Screenings (Total Rejections) | " " " " | 104 | 62 | 41 |

TABLE II

| | | Chemipulp |
|---|---|---|
| Steam | pounds per ton pulp | 3980 |
| Sulphur | " " " " | 222 |
| Limestone | " " " " | 299 |
| Screenings | " " " " | 52 |

TABLE III

| | | Chemipulp |
|---|---|---|
| Steam | pounds per ton pulp | 4277 |
| Sulphur | " " " " | 233 |
| Limestone | " " " " | 303 |
| Screenings | " " " " | 57 |

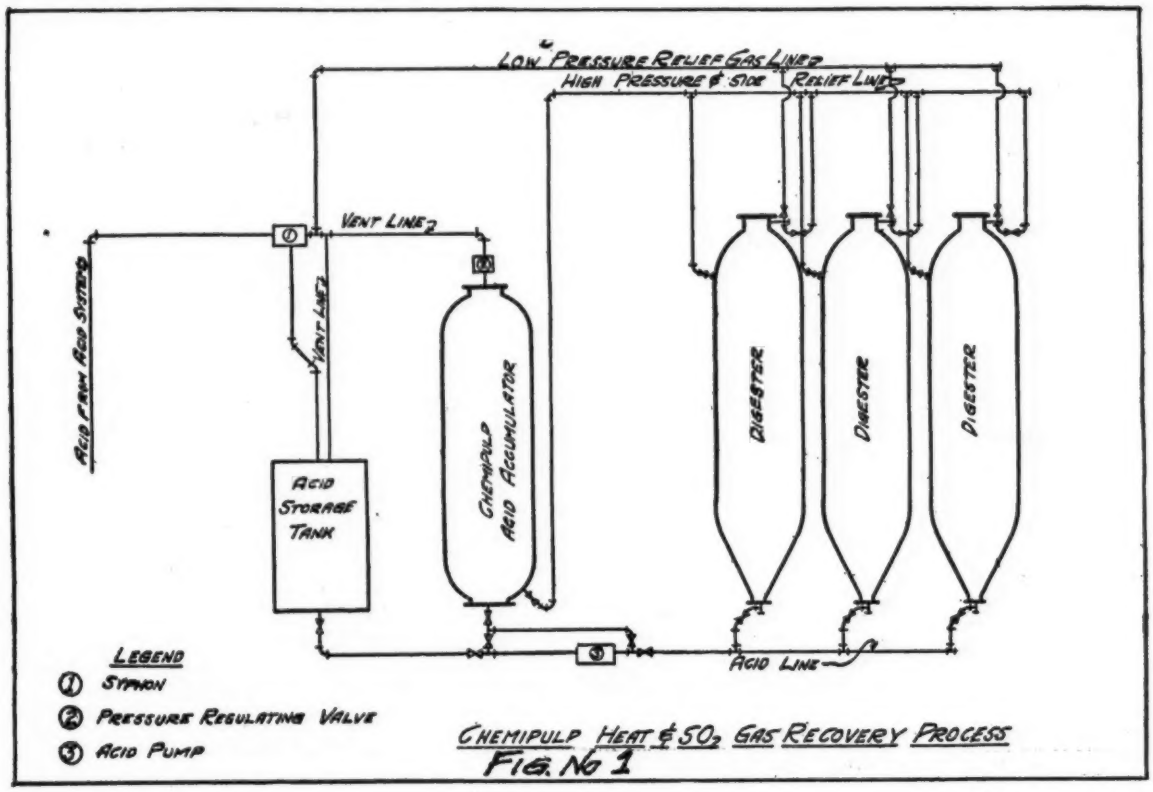
Table I shows comparative operating results from three mills that formerly operated by the so-called standard method and one mill that formerly operated by the method of injecting relief from one digester to the next.

Table II covers average results obtained from three new mills. As these new mills started up operating by the Chemipulp process, there is no comparative data available for this table.

The results given in table III are the average results from seven mills. Two of these mills are cooking a large percentage

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Philadelphia, Pa., May 29-31, 1930.

[1]Member TAPPI, Treasurer and General Manager, Chemipulp Process, Inc., Watertown, N. Y.




CHEMIPULP HEAT & $SO_2$ GAS RECOVERY PROCESS

FIG. NO 1

of hemlock and due to the fact that the yields from hemlock are lower than from spruce or balsam, the steam, sulphur and limestone consumptions as well as the screening rejections are higher for these mills than for those operating largely on spruce and balsam.

In every instance the screening rejections are the total rejections from the knotters and the screens and represent the average rejections in pounds per ton of pulp produced.

All of the data given is on the basis of an air dry ton. Also the data regarding steam is actual metered steam for cooking purposes only.

In one instance where very accurate records are kept, we are obtaining very nearly 49.5 per cent yield, this being based on bone dry pulp from bone dry wood. Also at this same mill a considerable portion of the wood is running 52 per cent in moisture content and the rejections from the knotters average approximately 1 per cent and the rejections from the screens average four-tenths of one per cent. Another fact that may be of interest is that the averages in table III are based on a total daily mill production of 769 tons of pulp.

### Conclusions

A comparison in the same mill under actual operating conditions between pulp produced by the standard process of cooling the relief gases and liquor and pulp produced by the Chemipulp process leads to the following conclusions based on average results:

1. The strength of the pulp produced by the Chemipulp process maintaining the same cooking time averaged better than 16 per cent stronger than that produced by the standard method and the pulp produced by the Chemipulp process was more uniform.
2. An average steam saving of 29 per cent has been maintained as compared with the method of cooling relief liquors and gases.
3. The average saving in sulphur amounts to approximately 14 per cent and the saving in limestone 21½ per cent.
4. The average saving in screenings amounts to very nearly 40 per cent.
5. The cooking time can be reduced approximately two hours without depreciation in quality and at the same maximum temperatures.
6. Providing the same cooking time is maintained for both processes test runs indicate that hot acid recovery will give approximately 20 per cent saving in bleach consumption.
7. If the cooking time is reduced two hours and same maximum temperatures maintained, there will be no appreciable improvement in quality of pulp, but the same savings, particularly of steam, sulphur and limestone, apparently are obtained.

Comparing the operating results actually obtained in the one mill which formerly used the injection method, the same general results as given immediately above were accomplished, except that the steam savings average 18 per cent instead of 29 per cent.

# The pH Value of Water and Stock and Its Relation to Beater and Calender Colors *

By Ralph W. Shaffer[1]

One of the most important items—in fact I believe it to be *The Most Important Item*—in coloring board is the pH value. Not only the pH of the water drained from the stock in the beater but also the pH of the fibers themselves, and there is a difference; for if some of the fibers in the beater have been exposed to either acid or alkali before being placed in the beater—those fibers will be more acid (or alkaline) than the water you can drain from the stock in the beater. Therefore it is a very necessary item to be taken into consideration when one is planning to color such a beater of stock, for if these acid fibers contain residual acid—even though the water of suspension be otherwise—it would be useless to attempt to color this beater while some of the fibers are in this state, for if we should use a color that is highly susceptible to acid these acid fibers would absorb a great deal more color than the balance of the stock in the beaters and therefore we would have a sheet of paper or board that would have a decidedly mottled appearance.

Conversely, the same is true of fibers that have been exposed to high alkalinity previous to their introduction in the beater. In fact, fibers containing residual alkali produce a much more pronounced color reaction than those fibers containing residual acid, and in this case these fibers are not only detrimental from a color standpoint but have a decided tendency to interfere with the formation of the sheet.

### Sizing Effect

A case came to my attention recently where *all* the fibers of the furnish were exceedingly alkaline before being furnished to the beater and the superintendent could not make this sheet hold a sprayed color. The furnish was 100 per cent rag stock—rotary cooked—and supposedly was to be well sized and colored by a spray of dye on the machine. When this sheet came on the machine it was found the color would not stay on the surface regardless to the concentration of the dye.

Clearly, this was not so much a dye or coloring problem as it was a sizing problem. This sheet, in spite of the fact that large quantities of size and alum were used, was absolutely waterleaf. This instance is given to show that, indirectly as regards to the color, the pH was solely at fault.

The reason this sheet was not sized and consequently not colored properly was due solely to the fact that the stuff was cooked for too long a period or possibly was not washed for a sufficient time. The result was that all fibers going into this furnish held an excessively high residual alkali and the size was ruined as soon as it was added to the stock. Hence when it came on the machine there was no size in it. Attempts were made to correct this condition by doubling the amount of size and alum furnished, but at a later date this same kind of stock was first neutralized in the beater before the addition of the size or alum with resulting satisfactory conditions on the machine.

In our mill we have at certain times experienced difficulties with different grades of pulp, chiefly with unbleached pulp, due entirely to the wide variation in pH value of the pulp itself and after many, many experiments under actual working conditions have made standard pH values for all grades of pulp used. For example, if we receive a certain lot of pulp, which for other reasons it was advantageous to purchase, that was either above or below the standard pH value for color work, we would neutralize the objectionable amount of acid (or alkali) so that there would be no mottling effect from the color action on this pulp.

### Hydrogen Ion Control

At this time I would like to call attention of color or dye manufacturers to the great need for them to establish and maintain

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[1] Asst. Supt. MacAndrews & Forbes Company, Camden, N. J.

pH determinations of the stock they use when they produce a so-called color match for the board mill superintendent to produce in actual practice.

The importance of this procedure can not be overestimated, for the handwriting on the wall points surely—definitely—to closer pH control in color work in the board mill or any other paper mill—if that mill hopes to maintain an A No. 1 product that will be color-satisfying.

Very recently I had occasion to be consulted in regards to producing a new shade of a certain grade of board. This shade was an extremely delicate tint and the furnish was a combination of two different grades of pulp. The color manufacturer was requested to recommend a color combination and sample previous to the run on the machine—the color manufacturer submitted samples in routine manner, but when the run was made the shade was very much darker than the color-match submitted; in spite of the fact that only 60 per cent of the recommended amount of color was used.

We immediately made pH determinations of stock in beater and found that the one grade of pulp in the furnish was 2.0 pH lower than the other grade. This was corrected by adding alkali to this pulp and beating in the presence of the alkali for fifteen minutes before proceeding with the furnish. Then after coloring was completed the stuff in beater was acidified to the normal durping pH value and the resulting color was very satisfactory.

When we investigated the pH value of the stock used by the color manufacturer in producing the match we found a difference of 2.5 pH between his value and the one in the mill, in spite of the fact that the stock he used was supposedly obtained from the mill for whom he was producing the match. This could have been caused by one of several reasons, but the fact remains that if the color manufacturer would have stated on his color formula the actual pH value of the stuff he colored—the superintendent in the mill could have obtained identical conditions in the beater before the coloring operation was started; resulting in saving of time—and headaches for the superintendent and incidently producing better results.

### pH Value of Dyes

The pH value is also of great importance in calender stain work and the results of extensive research on this problem have proven to our satisfaction that the pH values of calender stains should closely approximate the pH value of the sheet to be stained. There are many instances in as many mills where great difficulty is experienced by the fact that a good, smooth looking sheet without any calender stain has a decided grain raised appearance after staining. This is because of too great a difference between pH value of the sheet and the stain. For instance if we are to run a sheet of board with a liner pH of 6.0 we should have the calender stain at 6.0 pH also; or approximately so. A tolerance of 0.2 pH in either direction is negligible.

Some time ago, a superintendent of a mill was running a very deep shade of orange board on one of his machines. This board was dyed in the beater and also calender stained. This particular order had been made satisfactorily on previous runs, but this time had a heavy grained appearance and it was discovered that the barrels in which the calender stain had been mixed had at one time been used for dilution of acid to be used for souring a felt and although these barrels had been washed previous to mixing the calender stain, there remained in the wood of these barrels sufficient acid to drop the pH of the calender stain so that it was 2.5 pH below the pH of the sheet which was pH 6.3. As soon as this was determined—sufficient alkali was added to the stain to bring the pH value of the stain to pH 6.1 (four pounds of soda ash were used) and at this value there was no grain-raising and in fact the finish was superior to the runs which had been made previously without regard to pH value.

It has also been firmly established after lengthy experimentation that the pH of the water used on the calenders has a marked effect on the shade of non-colored boards such as manilas and whites, and incidentally effects the finish.

We have made tests on all pH values of water for calender use from pH 3.8 to pH 8.00 and the optimum value for raw water was found to be from pH 6.8 to pH 7.2.

These tests which were performed on identical manila board produced following results:

At pH 3.8 to 4.4 shade of manila was on the grey shade and finish was rough.

At pH 4.5 to 5.3 shade was grey but not so bad as at the lower pH value and finish was better at this pH.

At pH of 5.4 to 6.6 shade was dull. The sheet had appearance of being flat-colored but finish was improved.

At pH 6.8 to 7.2 sheet was very fine, creamy shade. The finish was excellent.

At pH 7.3 and on up to pH 8.0 shade was on the yellow side but finish was poorer the higher the pH was raised. On all of these tests the pH of the sheet was pH 6.0.

### Rotation of Color Furnish

Another item of importance in beater coloring is proper rotation of color furnish. Quite a large proportion of all beater dyed orders are dyed with a combination of two or more colors and in a large number of cases both acid and basic colors are used in the same beater and if the beaterman should be pressed for time there is a likelihood of adding basic color immediately after the acid color or colors or visa versa. This is all well and good providing the pH of the stock in the beater after adding the acid color is such that it will not affect the basic color. If the basic color being used should be highly susceptible to alkali, which they nearly all are, the pH of the stock in the beater should be definitely acid (at least a pH of 4.5) before adding the basic color—otherwise a considerable quantity of the basic color will be thrown out of solution and will be lost. This also applies, conversely, to adding acid colors following a basic color—in this case the stock after adding the basic color and before adding the acid color should be at pH of 7.1 to 7.3; however, this condition is met with very rarely, as acid colors are usually added to the furnish before the basic colors are added.

I believe that if the color manufacturer will establish a closer working relation with the mill superintendent in maintaining a check on the pH values of colored boards.

It will not only be a great benefit to the superintendents but to the color manufacturers themselves as it will eliminate a great many complaints.

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## Pitting of Soda Pulp Digesters

SPECIAL INQUIRY No. 150

A member writes: "We have a problem which is causing us some concern. Our soda pulp digesters show a marked wasting and pitting of the plate. The action is most marked over an area completely round the digester between three and six feet from the top. The digesters are of the stationary vertical type without forced circulation.

"We should like to know if any member has experienced this trouble and the means taken to remedy it.

"The wood cooked is Douglas fir and cottonwood. The fir is a highly resinous wood.

"A theory is advanced that the action is due to weak acids distilling off the wood before circulation of the caustic liquor which neutralizes them. These weak acids condense on the walls of the digesters at the top immediately above the chip level. Would forced circulation of the cooking liquor help prevent this action?"

Possibly sulphate pulp manufacturers have had similar problems and can furnish information that will throw light on this problem.

All those contributing some information to this inquiry, will receive in blank, a transcript of the replies. Send replies to Secretary of TAPPI, 18 East 41 street, New York, N. Y.

# Studies of Plant Design Factors in Soda and Sulphate Recausticizing Practice*

By C. L. Knowles [1]

Recausticizing practice in the chemical pulp industry has for the last four or five years been the subject of much critical study. Existing practice has been viewed with greater skepticism and a greater familiarity with advanced causticizing practice in the alkali industry has largely contributed to the interest in continuous recausticizing now manifest in pulp and paper circles.

Continuous causticizing and continuous counter current washing of the precipitated lime mud may be viewed as standard practice in that group of large alkali companies which is responsible for about two-thirds of the American tonnage of caustic soda. Not all of these chemical plants are 100 per cent continuous, but wherever changes have been made recently, continuous methods have replaced or supplemented batch or discontinuous ones, and continuous methods have become the standard for future plant modification and expansion.

In the soda and sulphate pulp industries, changes of the first magnitude have been made in recausticizing practice with the result that the trend towards continuous methods is virtually as pronounced as that in the older industry of alkali manufacture. A dozen or so pulp mills have adopted continuous causticizing in recent years and, although the arrangements for the two types of pulp differ slightly, the improvements made over earlier practice seem of the same order in both soda and sulphate mills.

### Pulp Mill Trend

Three or four years ago, when active efforts were made to interest the pulp mill superintendents in continuous methods, it was found that they would certainly consider a continuous plant for a new mill, but that they could not see the merits of scrapping an existing plant, reasonably satisfactory, and erecting a new continuous one, admittedly superior. Today we find a somewhat different attitude, the best evidence of which is the fact that the two largest continuous, recausticizing plants of their type, one for a soda and the other for a sulphate mill, being supplied by the company with which the author is associated, will be used to replace batch causticizing plants with many years of useful service ahead. Furthermore, judged by the accepted standards of the industry, these replaced batch plants were operated with more than the average skill, directed by extremely capable superintendents and chemists.

On the assumption that those present are reasonably familiar with the continuous causticizing papers delivered by the author and his associates before this association and the TAPPI and listed in a footnote,[2] only certain of the conclusions drawn therefrom, subsequently authenticated in practice, will be discussed in this paper. These conclusions may serve conveniently as an introduction to a consideration of actual plant design.

### Continuous Lime Slaking

The following conclusions, drawn from earlier studies, have governed the slaking of lime at recent continuous causticizing plants:

1—Lime should be slaked in weak liquor rather than in water.

2—Lime should be slaked with a minimum volume of liquor to yield a thick paste of calcium hydrate rather than a dilute suspension.

3—An elevated temperature expedites hydration.

4—The calcium hydrate paste should be diluted with the balance of the weak liquor available so that grit, sand and unburned core, present to a degree in the best commercial limes, may segregate from the milk of lime suspension and be removed before causticizing.

The observance of the above precautions is entirely feasible in a continuous plant and yields a smooth, grit-free milk of lime for causticizing purposes. Calcium carbonate precipitate, subsequently formed in the causticizing reaction, will be found to possess improved settling characteristics, facilitating the rapid decantation of white liquor, and will be free of coarse, inert particles which foul pipe lines, unseat pump valves and cause excessive wear of mechanical equipment.

### Continuous Green Liquor Clarification

This is a problem to be considered only in sulphate mills, particularly if lime mud reburning is contemplated.

1—The chief impurities in green liquor, detrimental to subsequent treatment, are sulphides of iron, unburned carbon and fragments of furnace lining.

2—Unless removed prior to recausticizing, green liquor dregs coat the lime particles, thus tending to retard recausticizing, slow up the rate of settlement, impair the porosity of filtration media and, if mud reburning is practiced, cause trouble from over or under burning.

Continuous sedimentation has proved effective for the removal of the harmful impurities in raw, green liquor. Continuous counter current washing of the dregs permits the practice of green liquor clarification without a loss of chemical exceeding a percent or less, which slight loss, it is believed, is more than counterbalanced by improved causticizing, decantation, washing and mud reburning.

### Continuous Recausticizing

The following points have a distinct bearing on reaction forcing and on the formation of precipitates amenable to subsequent decantation practice.

1—Little benefit to reaction is obtained by recausticizing at temperatures in excess of 85 to 90 deg. C.

2—Recausticizing reaches a commercial degree of completion in from forty-five minutes to an hour, and agitation greatly in excess of this period is detrimental to subsequent settlement of the precipitate due to floc destruction and mechanical comminution of the particles.

3—Excess lime increases the rate of reaction, but does not retard the rate of settlement to the degree usually supposed.

The observance of the above precautions, as well as those mentioned under the headings of "Continuous Lime Slaking" and "Continuous Green Liquor Clarification and Dregs Washing," yields, we have found, a coarse, crystalline precipitate of calcium carbonate which settles rapidly, washes easily and filters readily in the continuous decantation and mud washing equipment which follows.

Whereas the technical papers on this subject, referred to earlier, discussed the studies resulting in the conclusions enumerated in the preceding and suggested the use of equipment and flowsheets

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[1] Manager, Chemical Division, The Dorr Co., New York.

[2] Continuous Recausticizing Pulp and Paper, Dr. C. L. Knowles; TAPPI, 1927, N. Y. Meeting; Paper Trade Journal, April 7, 1927.

Continuous Recausticizing for Sulphate Pulp Mills, Dr. C. L. Knowles and A. Anable; Supts, Assn., May, 1927, Richmond Meeting; Paper Trade Journal. July 7, 1927.

Some Variables Affecting the Behavior of Limes Used in Causticizing, Dr. J. V. N. Dorr and Dr. A. W. Bull; American Chemical Society, April, 1927, Richmond, Va., Meeting; Paper Trade Journal, May 26, 1927.

Continuous Chemical Reclaiming Dept. of a Modern Soda Pulp Mill, A. Anable; TAPPI, Sept., 1927, N. Y. Meeting; Paper Trade Journal, October 13, 1927.

very slightly used in practice at that time, 1927, the balance of this paper will deal with the subject of actual plant design.

The three suggested layouts, shown in Figures 1 and 2 (see also Paper Trade J. page 60, April 10, 1930, Fig. 1), represent advanced recausticizing equipment layouts for a soda mill which reburns its lime mud; for a soda mill using only new lime and causticizing in two stages; and, finally, for a sulphate mill which clarifies its green liquor before causticizing and reburns its lime mud.

Embodied in these three plant layouts are design features of an advanced nature, facilitating the mechanical handling of large volumes of solution and sludge and materially reducing the duties of the operators and those responsible for the supervision of their work.

Furthermore two complete recausticizing plants, somewhat similar to that shown in Fig. 2, are now being erected at a soda and at a sulphate pulp mill to replace batch causticizing plants in an excellent condition mechanically. In these two recent cases, a critical balancing of present versus expected future costs plus fixed carrying charges was the basis on which the change in practice was made rather than the allegedly, intangible, operating conveniences which some have declared governed the selection in the case of new mills built during the past three or four years.

### Layout for Recausticizing and Reburning Lime

The layout shown in Fig. 1 represents a suggested arrangement of equipment for recausticizing at a soda pulp mill which reburns the washed lime mud. All material is handled mechanically from start to finish, operating labor is reduced to supervision alone and gravity flow is taken advantage of to the greatest possible extent as evidenced by the presence of only two pumps (exclusive of vacuum filter auxiliaries), one bucket elevator and two feeders in the layout.

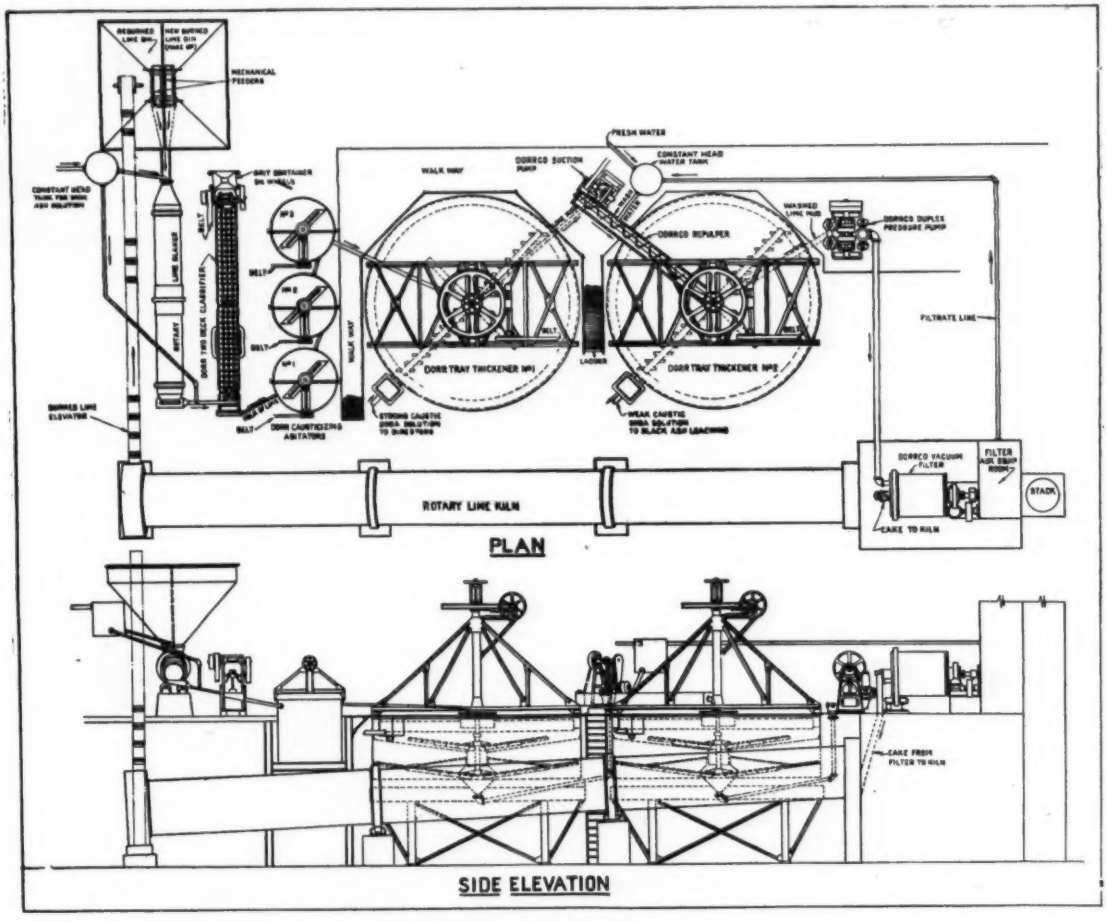
Where lime reburning is not considered desirable from an economic standpoint, the kiln and filter are eliminated and an additional thickener added for mud washing.

### Lime Slaking

Reburned lime from the kiln and new quicklime for making-up losses in the system are stored in two adjacent compartments of an elevated storage bin. Adjustable mechanical feeders charge the lime into a rotary lime slaker. Soda ash solution flows from a constant head tank at a uniform rate, part entering the slaker with the lime and the rest joining the slaked product and flowing with it into a washing classifier. Impurities in the lime, such as grit, sand, unburned core and particles of kiln lining, settle in the classifier and are thoroughly washed by a fine spray before being discharged mechanically into a container by the reciprocating rakes. The grit-free, milk of lime, a portion of which has already been converted to caustic soda, overflows a weir at the lower end of the classifier and enters the first of three causticizing agitators.

### Causticizing

The milk of lime and soda ash solution pass by gravity through three causticizing agitators, arranged in series on slightly different




**DORR CONTINUOUS CAUSTICIZING PLANT**

FIG. 1

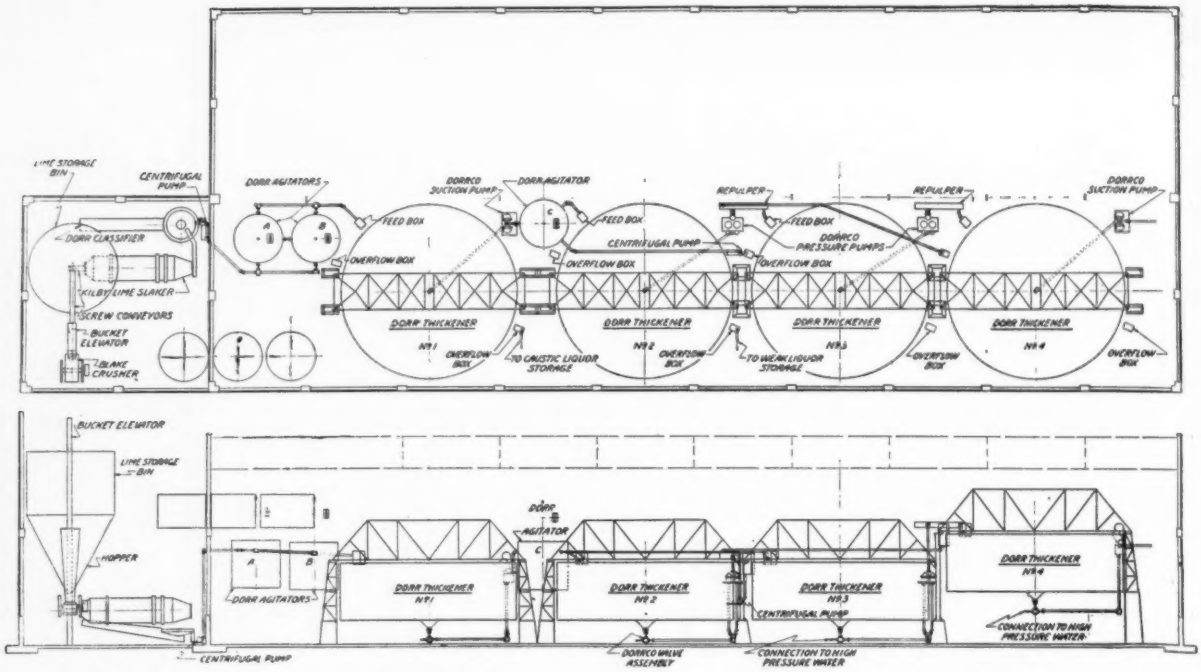



FIG. 2

elevations. The agitators are installed in covered and insulated steel tanks equipped with steam heating coils in order that a temperature of 85-90 deg. C. may be maintained during causticizing.

The material is retained in the causticizing agitators, for a period of from one-half hour to one hour in order to assure a high conversion or causticity. Agitation takes place in both the horizontal and vertical planes and positive mechanical methods are provided for preventing the accumulation of solids on the tank bottoms.

### White Liquor Decantation

The discharge from the last agitators flows by gravity into the first tray thickener from which a crystal-clear, white liquor is continuously decanted. This clear solution exists to a depth of two or three feet in each of the superimposed settling compartments and is displaced by the incoming feed into suitable overflow pipes which convey it to storage near the chip digesters.

The lime mud precipitated in the causticizing reaction settles by gravity upon the bottoms of the superimposed settling compartments and is raked gently to the center by the slowly revolving thickener mechanism. It is removed continuously as a thick mud by a diaphragm pump.

### Mud Washing

The diaphragm suction pump discharges the lime mud into repulper which thoroughly mixes the mud with fresh water and filtrate, added at a uniform rate from a constant head tank. This mixture or slurry flows in the repulping trough to the second tray thickener in which it is resettled. The weak caustic solution which overflows this thickener is used to leach soda ash or, in the case of a sulphate mill, to dissolve the smelt. The settled mud, now considerably impoverished in caustic content, is removed continuously by a diaphragm pressure pump and fed to a vacuum filter.

### Lime Reburning

A filter, located directly above the feed end of the rotary kiln, serves to remove the greater part of the solution from the lime mud before burning. The filtrate is pumped to the constant head water tank and is used with fresh water for mud washing. The filter cake drops by gravity into the feed end of the kiln.

The burned lime discharged from the kiln is conveyed to the reburned lime compartment of the storage bin. Usually 10-15 per cent of the lime mud is rejected to prevent the accumulation of impurities and the loss made up by the addition of new quick lime.

### Layout for Two-Stage Recausticizing Without Lime Reburning for a Soda Pulp Mill

The equipment used in Fig. 2 is substantially the same as that in Fig. 1, but is arranged in such a manner as to permit two stages of causticizing, separated by a white liquor decantation thickener, and three steps of mud washing in series-connected, continuous thickeners. There being no reburning of lime mud in this case, the vacuum filter has been eliminated and replaced with an additional thickener. The chief objective in this layout is the complete utilization of lime without reducing conversion of sodium carbonate correspondingly, and this objective is attained through two stages of causticizing, the first stage being carried out in the presence of an excess of lime to force the reaction, and the second in the presence of an excess of sodium carbonate to take up any excess of free lime remaining after the first recausticizing stage.

### Lime Handling

Burned lime, crushed to 1½ inch at the plant, is elevated to a storage bin and discharged to a rotary lime slaker at a uniform rate by means of an adjustable mechanical feeder.

The lime is slaked with a reduced portion of the sodium carbonate solution from reclaimed soda ash dissolving, the balance of which is added at the discharge end of the slaker to repulp the thick lime paste to a dilute suspension of calcium hydrate. This suspension flows by gravity to a classifier, the overflow from which, smooth and grit-free, is pumped to No. A causticizer. Grit, sand, core and other inert impurities in the original lime settle out in the classifier and are discharged to waste mechanically after rinsing with water.

### Primary Recausticizing

The reaction in causticizers A and B proceeds for one hour in the presence of the total reclaimed sodium carbonate and the total CaO which is required for recausticizing both the reclaimed and make-up soda. All of the weak solution overflowing thickener

No. 2 is added at this point to correct the strength of solution to the proper value. Under these conditions there is about 3 to 4 per cent excess lime, which, together with a temperature of 85-90 degrees in covered and insulated tanks, mildly agitated for a moderate period of time, accelerates the rate of reaction and assures high conversion or causticity.

The material in process of recausticizing passes through the two steam-heated causticizing agitators by gravity, since they are mounted on slightly different elevation, and eventually flows into the feed box of the first thickener.

### White Liquor Decantation

In No. 1 thickener a separation is affected between white liquor and precipitate, the former passing off continuously as an overflow product to storage near the digesters and the latter being removed continuously as a dense sludge by adjustable-stroke, diaphragm pumps. Due to the excess lime in the primary stage of recausticizing, this lime mud precipitate contains an appreciable amount of free, uncombined calcium oxide. The thickener tank is covered and lagged to reduce radiation losses and convection currents, both detrimental to sedimentation.

### Secondary Recausticizing

The lime mud from thickener No. 1 is pumped into Agitator C, in which the secondary stage of causticizing takes place. Into this agitator there also flows the bulk of the weak wash solution overflowing thickener No. 3 which serves to repulp the mud in the form of calcium carbonate and free calcium oxide suspended in weak caustic soda solution. All of the new sodium carbonate required for making-up soda losses in the entire plant is dissolved in a portion of the weak solution over-flowing from thickener No. 3 and is added at this point. Its volume is equivalent to an excess of 4-5 per cent $Na_2CO_3$ over and above that required to react with the free calcium oxide left over from the primary recausticizing stage.

The excess of sodium carbonate at this stage, together with the reduced strength of solution, assures rapid consumption of the free oxide. Accordingly, the material which, after half an hour's contact, flows from agitator C into thickener No. 2 consists of a mixture of caustic soda and sodium carbonate solutions containing in suspension virtually all of the original lime in the form of calcium carbonate.

### Mud Washing

The lime mud is introduced into, repulped in and pumped from thickeners Nos. 2, 3 and 4 successively, being advanced towards the discharge end of the plant in a direction counter current to that of the wash water. Wash water is introduced into thickener No. 4 and overflows into thickener No. 3. Thickener No. 3 overflow, as stated before, is utilized for diluting purposes in agitator C and for dissolving the make-up soda.

The overflow from thickener No. 2 is pumped to agitator A, also mentioned in the foregoing, where it corrects the solution strength to the desired value. The excess lime in the primary stage of causticizing assures full conversion of the excess sodium carbonate in No. 2 thickener overflow.

The washing of the mud is effectively carried out by advancing this mud in a direction opposite to that of the wash water. Continuous counter-current flow of solids and water assures progressive impoverishment of the lime mud with respect to soda content as well as progressive enrichment of the waste solutions in the same constituent, all of which is subsequently recovered through the introduction of the wash solutions into the agitators.

### Layout for Green Liquor Clarification and Single Stage Recausticizing with Lime Reburning for a Sulphate Mill

The equipment used in the layout shown in the Paper Trade J., page 60, April 10, 1930, Fig. 1, is substantially the same as that in Figs. 1 and 2, with the exception of the additional units provided for green liquor clarification and dregs washing. This particular layout is believed to be of more than usual interest in view of the general use of spare or interchangeable units in order to assure continuity of operation in the face of all conceivable, mechanical break downs or interruptions of flow. Fig. 2 printed in the April 10 issue shows the details of the lime handling and recausticizing portion of the plant and Fig. 3 of the same issue shows the piping details and hence the flow of material through the system.

### Burned Lime Handling

Fig. 4 shows the layout ot that part of the plant devoted to lime handling. Reburned lime from the kilns falls onto a pan conveyor which in turn feeds an elevator discharging into either of two reburned lime bins. Make-up, burned lime is delivered by railroad at a siding, unloaded into a hopper feeding a 1 inch jaw crusher and the crushed product delivered by means of an elevator to either one of two make-up, lime bins.

Each bin is supplied with an automatic feeder so that reburned lime or make-up lime may be fed continuously to either one of two rotary lime slakers, one of which is a spare. Obviously this flexible arrangement makes it possible to feed various mixture of reburned and make-up lime to either slaker, or, if desired, to operate both slakers at the same time on reduced feeds.

A portion of the clarified green liquor is used to slake the lime, producing a thick paste which is diluted to the free settling state with the balance of the clarified green liquor. This pulp then flows by gravity to a bowl classified for the removal and inert impurities such as grit, sand and unburned core.

The overflow of the bowl classifier is a mixture of smooth, grit-free calcium hydrate, suspended in green liquor. This is elevated to the causticizing station by a small centrifugal pump. The inert impurities are continuously discharged in a drained condition by the classifier and carried away to a convenient waste receptacle by a small conveyor.

### Green Liquor Clarification

Referring to Fig. 3 of the April 10 issue of the PAPER TRADE JOURNAL, the piping layout, it will be seen that the raw green liquor from the smelt dissolving tanks is clarified in a thickener equipped with three trays, equivalent to four, superimposed settling compartments. This is thickener No. 3 on the layout arrangement. It is heavily insulated against temperature drop, an essential point in the handling of strong green liquor.

The top compartment of this thickener produces no overflow, but acts simply as an equalizing storage tank to absorb fluctuations in the smelt dissolving cycle. It also serves the useful purpose of conditioning the feed and causing the suspended solids to flocculate, this improving their settling qualities.

Clarification takes place in the three lower compartments. The clarified overflows are combined in collection boxes, attached to the upper portion of the thickener tank, and flow by gravity to green liquor storage tanks, not shown on this layout.

### Dregs Washing

The settled dregs are removed continuously from the bottom of the green liquor clarifier by a diaphragm pump which discharges them into the upper compartment of a three tray thickener of the washing type. This thickener is located outside of the building and is not insulated against heat loss since an elevated temperature is not essential at this point.

The compartments of this thickener operate in series, for washing purposes, rather than in parallel to give additional clarification capacity. Wash water, introduced in the lower-most compartment flows counter currently with respect to the dregs and eventually overflows from the top compartment in the form of weak solution and is used for smelt dissolving under the furnaces. The dregs, after three stages of washing in the various compartments, are removed continuously from the bottom of the thickener tank by a diaphragm pump and sent to waste, preferably with the lime grits from the bowl classifier.

### Recausticizing

The grit-free calcium hydrate, suspended in clarified green liquor

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overflowing from the bowl classifier in the burned lime handling station, is pumped to the first of three causticizing agitators, arranged in series on slightly different elevations to permit gravity flow through them. Each agitator tank is equipped with steam heating coils and is covered and insulated to minimize heat losses.

The volume provided in the three tanks gives an hour's contact during causticizing. Mixing is thorough but not so violent as to destroy the coarse form of the precipitate, and thus retard the rate of settlement is subsequent equipment. By-pass lines provided so that any causticizer may be cut out of the circuit without affecting the operation to a greater extent than a reduction of the duration of causticizing.

### White Liquor Decantation

The discharge from the last of the three causticizers flows by gravity into the feed box of a thickener equipped with three trays, dividing the tank into four superimposed settling compartments. The thickener tank is covered and thoroughly insulated against heat loss so that there may be a drop in temperature during decantation of not more than 5-10 deg. F.

The overflows from the various compartments, all of which operate in parallel, are combined in collection boxes, near the top of the tank and flow by gravity to white liquor storage tanks conveniently located with respect to the digesters. The settled lime mud is withdrawn continuously by either one of two diaphragm pumps and is passed on to the mud washing step for the recovery of white liquor, entrained in the sludge.

Should it be necessary, for any reason, to remove this thickener from service temporarily, approximately 75 per cent of the volume of white liquor may be drawn off through a connnection in the side. The second or mud washing thickener, being of the same size and type, may be used for white liquor decantation during a shut down of the first thickener, the only loss being that of one stage of mud washing.

### Mud Washing

The lime mud removed from the white liquor thickener is repulped with filtrate from the vacuum filters, ahead of the rotary kilns, and then mixture thickened in the second or mud washing thickener. The weak liquor overflow from this thickener flows by gravity to storage near the smelt dissolving tanks, under the furnaces, being used there for dissolving smelt in the same manner as the weak solution overflowing the dregs washing thickener. The settled lime mud is withdrawn continuously by either one of two diaphragm pumps and pumped to the rotary vacuum filters in the kiln room.

Should it be necessary to remove this thickener from service temporarily, about 75 per cent of the weak liquor contained in it may be drawn off through a connection in the side. While out of service the sludge may be pumped directly from the white liquor thickener to the filters without interrupting operation. One stage of mud washing is lost by this procedure which should not prove harmful for a short period.

### Mud Reburning

The washed mud from the second thickener is pumped to the vacuum filters in the kiln room. These filters, first, remove excess weak liquor, and second, wash the lime cake with sprays of hot water in order to reduce the caustic content to the minimum point. The washed cake is fed to the rotary kilns by a water-jacketed, spiral conveyor.

The filters should be located at such an elevation above the preceding thickeners that filtrate may gravitate to the feed box of number two thickener for repulping the mud from thickener number one. Furthermore, provision should be made so that excess sludge, pumped to the filtration station, may overflow from the filters and flow by gravity back to the preceding thickener. This latter innovation eliminates the need for surge or feed tanks ahead of the filters and makes careful manipulation of the filters unnecessary.

The rotary kilns may be fired with powdered coal, oil or natural gas. The reburned lime drops onto an apron conveyor and is returned to the lime bins, thus completing the cycle of operations described in this paper.

### Special Features Incorporated in Layout

The following features of the layout have been discussed briefly in the foregoing, but may be reconsidered at this point as a recapitulation of the outstanding points in the advanced practice, incorporated in this design.

### Chemical Control

1. Reburned and make-up lime handled continuously by accurate mechanical feeders.

2. Clarified green liquor corrected to standard strength and fed by gravity at a uniform rate to lime slakers and classifier.

3. Wash water, equal in volume to white liquor production (with minor correction for water lost in dregs and filter cake), supplied at uniform rate from constant head tank, about 40 per cent being used for dregs washing and 60 per cent for mud washing.

### Duplicate Units

The following provisions have been made for uninterrupted operation by supplying spare units or units mutually interchangeable.

1. Two lime slakers (one a spare), each supplied with lime by two automatic feeders from two bins, one containing make-up lime, the other reburned lime.

2. Three, interconnected, series causticizers, provided with by-passes permitting any one to be removed from service without interrupting the flow.

3. Two tray thickeners, used respectively for white liquor decantation and mud washing, interchangeable in case of a shut down of either one at the sacrifice of one stage of mud washing.

4. Two sludge pumps (one a spare) on each lime mud thickener to permit replacement of rubber diaphragms and cleaning of pipe lines without interrupting the flow of material.

5. Two kilns and two batteries of vacuum filters, permitting reburning of a portion of the lime mud during shutdown for kiln relining or filter overhaul.

### Gravity Flow

1. Clarified green liquor flows by gravity from green liquor clarifier to correction tanks and from there through the lime slakers and bowl classifier. It is then pumped to causticizers.

2. White liquor flows by gravity through causticizers and white liquor thickener to storage near digesters.

3. Wash water flows by gravity to filters, mud washing thickener and dregs washing thickener and thence to storage near smelt dissolving tanks.

4. Filter overflow returns by gravity to mud washing thickener.

With the exception of raw green liquor and milk of lime the only material pumped is sludge, the pressure head in which case seldom exceeds ten feet.

The three layouts discussed in this paper represent approved design of continuous recausticizing plants for the solution of three types of chemical reclaiming problems frequently encountered in chemical pulp manufacture. Different as they are in certain respects, they are none the less similar in the type of equipment employed, the utilization of gravity flow wherever possible, and the mechanical proportionment of raw materials and mechanical handling of solutions and solids.

The discussion of operating results presents many difficulties, aside from that of disclosing production figures of a confidential nature. Visits to many pulp mills have revealed the fact that certain terms in common use, such as causticity, sulphidity, recovery, etc., have a different meaning at different plants, this leading to great confusion when results at one plant are discussed in terms used at another. It is understood that efforts are being made by the TAPPI to codify the terms used and to secure acceptance of certain standard definitions. Accordingly the standard definitions

of terms adopted by the author and his associates, may prove of interest.

**Suggested Definition of Standard Terms**

1. **Total Alkali** equals
$NaOH + Na_2S + Na_2SO_4$, expressed as $Na_2O$
2. **Active Alkali**
$NaOH + Na_2S$, expressed as $Na_2O$
3. **Causticity**—Per Cent
$$100 \times \frac{NaOH}{NaOH + Na_2CO_3}, \text{ expressed as } Na_2O$$
4. **Activity**—Per Cent
$$100 \times \frac{NaOH + Na_2S}{NaOH + Na_2S + Na_2CO_3 + Na_2SO_4}, \text{ expressed as } Na_2O$$
5. **Sulphidity**—Per Cent
$$100 \times \frac{Na_2S}{NaOH + Na_2S}, \text{ expressed as } Na_2O$$
6. **Reduction**—Per Cent
$$100 \times \frac{Na_2S}{Na_2S + Na_2SO_4}, \text{ expressed as } Na_2O$$
7. **Chemical Consumption**
$$\frac{\text{Pounds } Na_2O \text{ equivalent of } Na_2CO_3 \text{ or } Na_2SO_4 \text{ added per day}}{\text{Tons Air Dry Pulp produced per day}}$$
8. **Chemical Recovery**—Per Cent
$$100 \times \frac{\text{AA to Digesters less TA in New Chemical}}{\text{AA to Digesters}}$$

Where TA represents "Total Alkali" and AA represents "Active Alkali"

9. **Chemical Loss**—Per Cent
   a. Total—
   $$100 \times \frac{\text{TA in new chemical}}{\text{AA to Digesters}}$$
   b. Loss in Pulp
   $$100 \times \frac{\text{TA to Digesters—less TA to Evaporators}}{\text{AA to Digesters}}$$
   c. Loss in Evaporators and Furnaces
   $$100 \times \frac{\text{TA to Evaporators plus TA in new chemical minus TA in smelt}}{\text{AA to Digesters}}$$
   d. Loss in Recausticizing and Mud Washing
   $$100 \times \frac{\text{TA in smelt minus TA in white liquor}}{\text{AA to Digesters}}$$
   or
   $$100 \times \frac{\text{TA in discarded mud and dregs}}{\text{AA to Digesters}}$$

On the basis suggested in the foregoing, the losses at each point would be accounted on the same basis as "Recovery" and "Total Loss" that is the ratios which they bear to "Active Alkali to Digesters." Thus a direct comparison of the figures would show their actual significance with respect to each other and with respect to production, chemical consumption and chemical control figures.

In this way, it is believed, fair comparisons of efficiency on a percentage basis may be made between different plants even when operating under widely different conditions. Moreover, expressing all losses as a percentage of the active alkali sent to the digesters makes it easier to visualize the relative seriousness of the individual losses and the importance of maintaining causticity and reduction figures at a maximum.

# Heat and Power Problems With High Pressure Steam*

By W. R. Crute[1]

So much has been said and written during the last few years on the subject of the use of high pressure steam in industrial plants that it is difficult to write a paper of any length without repeating facts which have been ably elaborated on in numerous articles appearing in the various technical journals. Since pulp and paper mill superintendents, wherever located, find heat in the form of steam an essential, one is encouraged to discuss this subject, not on a highly technical basis but with the idea of pointing out how, by the intelligent use of high pressure steam, fewer heat units need be allowed to escape to the sewer.

**Definition of High Pressure**

Before proceeding with this paper, it would perhaps be best to agree on a definition of high pressure steam. Some have defined it as being high enough to be out of the ordinary, but for our discussion we will consider high pressure plants as those employing a pressure of 400 pounds or higher. I might state here that there are at least 70 industrial plants in the U. S. and Canada in this class, another is now being installed to operate on 1800 pounds pressure and 141 are using steam pressures of 300 pounds or over.

Having given this broad definition of high pressure steam plants the first question that naturally occurs to us is, what pressure should we use in our plant? I can assure you the question is much more easily asked than answered. One indefinite answer would be: that pressure which will give the lowest fuel cost with the smallest labor payrolls and least maintenance charges, yet delivering reliable service without too great an investment. A more definite answer would be that: the ideal pressure ignoring the economic side is that pressure which will enable a balancing of the heat and power requirements of the plant.

The determination of the pressure that will come nearest to balancing the heat and power, and at the same time provide the necessary process steam at the desired pressure, is of the greatest importance, and can only be found by a careful study of the basic data of each industrial plant. As a general rule one will not go far wrong to accept that pressure and plant design that will allow the generation of considerably more by-product power than is needed at the time of installation. Most industrial plants either grow or fail. If they grow they will need the power and if they fail they will simply be a little deeper in debt.

**Power and Heat Units**

It must be remembered that power can be completely converted into a definite amount of heat at any desired temperature. A kilowatt-hour of electric power can be converted into 3412 b. t. u. whether in producing an electric arc or melting ice. Therefore most plants can find a use for an almost unlimited amount of electric power, if it can be obtained cheaply enough. It can be converted into chemical production such as electrolytic bleach or

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even into heat for producing steam, so it will be seen that the problem of determining the proper steam pressure for any plant resolves itself into the selection of that pressure which will give a balance of the heat and power requirements, and generate from the process steam and maximum by-product power that can be economically used.

With the information available today, if the engineer is fortified with the exact facts concerning the mill, there is little difficulty in designing a power plant which he can be confident will produce the results predicted for it. At the present time the 400 to 450 pound pressure boiler seems to be the most popular with the pulp mill engineers. The power is developed with a bleeder type non-condensing or mixed pressure non-condensing turbo-generator; the steam for cooking is bled off from the turbine at 125 to 135 pounds pressure, while the steam for the driers, evaporators, heaters, etc., is taken from the exhaust which is usually carried at approximately 25 pounds pressure.

### Turbines

When the plant power and heat loads are such that the condensate from the evaporators, driers, heaters, etc., can be returned to the boilers as feed water; the hot condenser water all used in process operations, where hot water is necessary, you will have what can be considered an efficient plant from the heat and power standpoint. In deciding between the bleeder and mixed pressure turbines the latter has the advantage in plants where the waste heat boilers (used back of the lime recovery, soda or sulphate recovery systems) and the refuse boilers, used for the disposal of the bark, wood refuse, etc., make more steam than is needed in the cooking processes, the excess can be put through the turbine thus producing some by-product power from it, while being reduced to the 25 pound pressure at which it is used in most of the other equipment of the pulp mill.

While on the subject of turbines, in plants where it is impossible to balance the power and heat load even with high pressure steam, and the installation of a condensing turbine seems advisable, a large saving can often be made by designing the turbine unit so that the load can be carried with a low vacuum. This will allow the reduction of the quantity of water used and will allow the raising of the temperature of the condenser water to say, 160° F. Water at this temperature can usually be used in a pulp mill as boiler feed water or for washing or diluting stock, thereby raising the temperature of the stock which is desirable in the bleaching plant or in the machine vats, especially if the rise in temperature can be accomplished with heat that would otherwise go to the sewer. In one mill over $50,000.00 per year is being saved by the use of the condenser water as outlined above.

### Regenerative Cycle

Another method of obtaining more kilowatts from a given amount of process steam is by use of the "regenerative cycle," which is now being used by some of the progressive paper mill plant engineers who have high pressure steam available. In plants with high class operating personnel and capital available for investment in the additional equipment, the increased amount of electrical power obtained will often offset the complications of the plant due to the installation of additional heaters, valves and piping. One of the progressive paper mills which is now purchasing a large block of central station power is installing a high pressure steam plant, employing three stage regenerative heating, which will make enough power to electrify its whole plant and have a considerable block of power for outside uses.

For the benefit of those of us who may not have had occasion to look into the description of the regenerative cycle for power generation, I might state that it is called "regenerative" since the heat, of steam bled at various stages of expansion form the turbine or other prime mover, is regenerated by being returned to the boiler in the feed water. With a three stage regenerative cycle, the feed water is passed through three heaters, each supplied with steam at a different pressure taken from the turbine at three different stages.

Another application for high pressure steam in the industry, which is of particular interest to those of us who are operating plants built before the high pressure steam plants became so popular, is the addition of a high pressure boiler and non-condensing turbine to the existing plant; the turbine exhausting into the original live steam header against the pressure of the existing boiler plant. This has been done with very satisfactory results in several pulp and paper mills. One plant that was using approximately 200,000 pounds of steam per hour at 170 pounds pressure, by installing a 450 pound pressure boiler and a turbine operating on 400 lb. pressure at the throttle, exhausting against 170 pounds pressure was able to generate approximately 4000 additional kilowatts of electrical energy with the same 200,000 pounds of steam. This of course changed this amount of electric power from primary or high priced power to by-product or low priced power.

A better idea can be gotten of just what gain this is by comparing the b. t. u.'s expended in producing a kilowatt-hour of by-product power with the amount of heat required in the best central stations, and in the average industrial plants. To accomplish the same results the average industrial plant will expend probably 25,000 b. t. u.'s, the best central station around 13,000 b. t. u.'s as compared with 5,000 b. t. u.'s used in the generation of one kilowatt-hour of electrical energy as by-product power.

### Superheated Steam

Another point of interest in the high pressure steam plants, particularly to the pulp mill superintendents, is that superheated steam is used almost exclusively. Usually the steam bled off for the digester cooking is superheated so you do not have to listen to wet steam "alibis" when the pulp is not properly cooked. Some will probably criticize having the bled steam superheated, but we feel that with a modern desuperheater your loss is negligible and you can control the steam temperature within reasonable limits, although we must acknowledge that we are not overenthusiastic about the temperature controls furnished with some of the desuperheaters.

The designers of the newer boiler plants for the pulp and paper mill industry have almost universally gone to larger boilers designed to operate at high ratings. This was done to reduce the amount of capital invested in boilers, and was made possible largely by the use of water cooled furnaces which allowed the use of the higher furnace temperatures necessary without excessive furnace maintenance costs. The earlier designed boilers for the very high ratings caused the plant engineers and boiler designers considerable grief before dry steam was actually delivered. The leading boiler companies have however succeeded in overcoming this difficulty to a large extent by better design of the circulation, yet even now it is considered advisable to devise some means of preventing the peak loads of the plant from exceeding the maximum rating at which the boilers will deliver dry steam. For this purpose the steam accumulator is coming into more general use. By storing up the excess steam generated during low load periods in an accumulator, the high peaks can be topped off during the heavy load periods without disturbing the efficient operating load on the boilers. In the smaller plants having fewer digesters, the steam accumulator is more applicable than in the large plants with a diversified steam demand.

### Boiler Plate Embrittlement

So far in this paper, due to our enthusiastic belief in high pressure steam as a means of solving some of our heat and power problems, very little has been said to indicate that any change in operating methods or personnel is required with the high pressure boiler plants. Since you gentlemen are mostly interested in the operating end of your respective plants, it would be an imposition to close this paper without some mention of some of the grief that may be encountered by failure to recognize the fact

that the methods of manufacture as well as methods of operation of high pressure boilers must be different from that of low pressure boilers. You no doubt have heard of several failures of new high pressure boilers within the last few years due to boiler plates cracking. These failures were attributed to various causes. Some blamed caustic embrittlement, some corrosion-fatigue, some poor workmanship in the manufacture of the boilers, and so far as I know they may all be partly right.

However that may be, the fact we are most interested in is that since high pressure boilers are failing and the finger of suspicion points to the chemical attack on the metal by caustic or other corrosive components of the concentrated water when subject to high temperatures, it behooves us who have installed or are considering the installation of high pressure boilers to see that our feed water is right to begin with and keep within the restricted limits of tolerance suggested by the chemist. To further emphasize the necessity of providing the proper water before considering the operation of a high pressure boiler plant, I will refer you to a recent circular issued by the American Boiler Manufacturing Association entitled, "Embrittlement of Boiler Plates" which reads as follows: "There have appeared from time to time in various technical publications, descriptions of peculiar failures of boiler plates by cracking and an explanation of the cause. This is a highly technical subject which cannot be thoroughly covered in a few words. It may be briefly stated however that boiler water containing sodium carbonate will cause embrittlement unless proper proportions of counteracting chemicals are used which will inhibit this effect, which is a gradual breaking down of the bond between the crystals, thus resulting in inter-crystalline cracks that follow the grain boundaries and which invariably occur only in the highly stressed portions of the material where a concentration of the salts can occur."

Now this is the part of the circular of particular interest to you as an owner or prospective owner of high pressure boilers: "The causes of plate embrittlement are beyond the control of a boiler manufacturer and he is, therefore in no wise responsible for any such failures that may occur." Because of the extent of past and possible future troubles of this kind this Association issues the brief information contained in this bulletin as a cautionary warning to the users of steam boilers. In other words you hold the bag if the boiler cracks.

### Hammer Welded Drums

When it comes to the construction of the boiler drums, in view of the previously mentioned failures, I would give serious consideration to the use of hammer-welded or forged drums. Many engineers and most boiler manufacturers will take issue with me on this stand, and insist that the inside caulked riveted drum is fully as safe as the hammer-welded or forged drum. You see there are yet a few items open for discussion.

Another point of vital interest in connection with the feed water for high pressure boilers is the absolute removal of the entrained air before it enters the feed pump. This can be done very satisfactorily with the modern deaerator. If this air is not removed, the penalty may be the purchase of a new set of economizer tubes and boiler feed piping within the course of a year or two.

Just why did we, all of a sudden decide to adopt the use of high pressure steam? The real cause of the introduction of high pressure boilers was that it was the only forward step left the designing engineer. Metals now commercially available begin to lose certain of their mechanical properties at about 750 to 800 deg. F. Steam at 300 pounds pressure had been superheated to this temperature, now since the engineers in this country did not care to go higher with the superheat, increase in pressure seemed to offer a new hope of economy.

Its use was justified, as is indicated by the seven plants now being built and being built to operate on 1000 pounds pressure or over. The throttle pressure, however, in no way affects the fuel consumption, 1200 pound operation shows no higher fuel economy than 200 pound operation. The pressures only determine the number of kilowatts that can be obtained per 1000 pounds of steam per hour. For example, a turbine operating with steam at 1200 pounds at the throttle, exhausting at 150 pounds pressure will deliver approximately 26 kilowatts per 1000 pounds of process steam per hour. With a steam pressure at the throttle of 600 pounds, and against the same 150 pounds back pressure, this turbine will deliver only 17 kilowatts per 1000 lbs. of process steam per hour. If the throttle pressure be further reduced to 400 pounds, only 12.5 kilowatts would be obtained with 1000 pounds of process steam. In each of the above examples, initial steam conditions were such that the turbine would exhaust commercially dry steam.

These figures answer fully how higher steam pressures can solve some of the heat and power problems in the pulp and paper mills. The principal point to be watched is that the designers, in their efforts to be progressive, do not advocate unsuitable or untried developments either in the general plant design or equipment, and thus commit your companies to the hazards involved. You must insist that your engineers design conservatively. Pioneering should not be discouraged, but the fact that the proposed equipment is likely to cause trouble in the plant should be given full consideration, for during this period of perfecting, it will contribute little to the profit of the plant. When this procedure is followed, the high pressure steam plant is likely to function as intended and prove an important factor in solving the heat and power problems of the pulp and paper industry.

# The Resistance of Alloys to Sulphite Corrosion*

By J. D. Miller[1]

The solution of a corrosion problem is the determination of the most suitable material for the conditions involved. From the commercial standpoint, this material will perform the task at hand more economically than any other, counterbalancing a possible greater first cost with extended active life.

About a year ago the Corrosion Committee of TAPPI undertook a study of the corrosion problem of the sulphite pulping industry. The first step was to send a questionnaire to the industry, to gage the position of the industry at that time. One-third of all the sulphite mills of U. S. and Canada responded. Although most of the mills declined to answer, an estimate of the magnitude of this problem was had from the average of the replies to the question, "What Is the Value of Corrosion Loss in Dollars per Year per Ton Daily Production, for Materials Only?"

This average was $98.75, from which, for example, a 50 ton mill would have a replacement bill of $4,937.50 annually. To this must be added the labor charge and loss in production, which would increase the figure appreciably.

### Corrosion Chamber

The best equipment available to examine sulphite resistant material was the corrosion chamber, which was described in detail in the committee report presented at Richmond, Va., last September. This description was reprinted in the Nov., 1929, issue of Chemical and Metallurgical Engineering together with

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* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Philadelphia, Pa., May 29-31, 1930.

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the invitation to the manufacturers of corrosion resistant materials to co-operate with the committee. The co-operation has been excellent, and the three testing stations of the committee have had the opportunity of examining 56 alloys to date, with many more awaiting the service of the chamber.

To interpret the results obtained in the corrosion chamber in terms of actual service conditions, the inches penetration per year of brass samples calculated to the thickness of extra heavy brass pipe of the same composition, indicate a life of about 10 years. Service life is about one year, or the test conditions are one-tenth as severe as actual service. This difference is due to the reduction of the erosion effect in the chamber, where the ¼ inch by-pass is expanded to a larger pipe. The chamber where this particular relation was observed, was 10 in. long, 3 in. diameter at the inlet and 2 inches diameter at the discharge. This is a constant for these conditions, but is not used in the data to follow.

The analysis of the metals have been furnished by the metallurgists. Where they have not been complete, we have not gone further with the analysis. This is a disturbing factor. Another point is the history of the samples, which is generally unknown to us. Since the surface condition and thermal treatment of the ferrous alloys in particular, have a decided influence on the corrosion resistance of the metal, this point must be considered in the results obtained. The relation of the physical properties, as hardness, to resistance, would be included in a more exhaustive study of the problem.

### Test Results

In the data, results from one station only are given, and are from the same chamber and cooking conditions throughout.

Twenty-six samples submitted by the research departments of the non-ferrous manufacturers, each of different analysis, have been tested to date. These were all of the high copper base. It was found that satisfactory loss could be obtained by 200 to 250 digester-hours exposure. A surprising uniformity of results was obtained. The inches penetration per year was from .02 to .05. With the standard test samples which are exposed on the six faces to attack, this corresponds to a loss in weight of 2 to 5 per cent.

In the ferrous alloy field, it was necessary to modify the test. The time of exposure was increased to 400 to 450 digester-hours, the limit being due to the press of other samples for the chamber.

A further complication was the resistance of the films on many of these alloys to cleaning, after exposure. While in the non-ferrous field, practically all the samples are cleaned with ease by sulphurous acid, it is necessary to resort to 1-4 nitric acid for most of the ferrous-alloys. The alloys are examined in the nitric acid before exposure to note the resistance, and if appreciable loss is noted, the correction is made in the final weight. This film effect is probably an important factor in the resistance.

Eight samples of 18-8, (Chromium-Nickel) have been tested, in which no reference to heat treatment was made, and two which were listed as heat treated, although the treatment was not detailed.

In all but one of these, a gain in weight was obtained, amount from .7 to 2.2 milligrams in a 30 gram sample. The loss in the other sample was .0000055 in. per year. In these samples and those to follow, the carbon content was not given by the manufacturer, although from published tables corresponding to the trade name of the alloys, it varied from .07 to .2 per cent with the silicon from .5 to .75 per cent. There was no evidence of the influence of these elements on resistance, within these ranges.

An interesting series consisted of duplicate samples of 18-8; 18-8 heat treated; 18 per cent Cr.; 12 per cent Cr.; 18-8 with 3 per cent Si., and 18-8 with 3 per cent Mo. With the exception of the 18 per cent Cr. and the 12 per cent Cr., no loss was observed when all were exposed 413 digester-hours. The following is a summary of the results from the ferrous-alloys, including the above series:

| Si. | Cr. | Ni. | Mo. | Dig. Hrs. | Penetration Inches/yr. | Notes |
|---|---|---|---|---|---|---|
| .. | 25 | .. | .. | 500 | ... | One sample. |
| .. | 18 | .. | .. | 413 | .002 | Duplicates |
| .. | 12 | .. | .. | " | .104 | " |
| .. | 18 | 8 | .. | " | ... | " |
| 3.0 | 18 | 8 | .. | " | ... | " |
| .. | 18 | 8 | 3.0 | " | ... | " |
| 2.5 | 18 | 25 | .. | " | .001 | One sample. |
| 5.0 | 12 | 35 | .. | " | Badly atacked. loss in weight. | Probably 25% One sample. |

### Influence of Alloy Composition

The table indicates a decided influence of composition on resistance, with 18-8 as the most resistant until the Chromium is increased to 25%. Nickel in excess of 8% with 18% Chromium seems to reduce the resistance of the alloy.

These results are not to be considered as absolute, as with the exception of the 18-8 group, only one sample has been available for examination, to date. Considerably more work is required before the picture of the ferrous field will be complete. They do point however, to the desirability of purchasing the alloys by analysis, so that each mill will have as complete a record of corrosion experience as possible. This point may be applied to the non-ferrous alloys as well.

This work is largely a matter of going over old ground, since the 18-8 alloy has been rather established as a satisfactory material. The efforts are now toward the development of an alloy of possibly less resistance, but with improved working properties. The success in this direction is uncertain at this time.

The replies to the questionnaire of last year indicated that the industry was interested in the ferrous-alloys. Certainly that interest is increasing, if judged by the Corrosion Session of TAPPI in February, 1930.

These alloys hold great promise in solving the sulphite corrosion problem. The difficulties in manufacture have been great, and it seems an entirely new technic had to be evolved for the fabrication into commercial products. The metallurgical industry, at considerable expense, is making fine progress in overcoming these difficulties.

The present seems to be a transition period, in which unexpected and unusual failures of the ferrous-alloys may occur. Continued progress in this field holds the picture for the future in which the sulphite equipment will be a permanent installation, with the life measured in years where it is now measured in months. The problem will then be considered as solved.

## American Engineering Co. TAPPI Member

Another leading engineering equipment company has joined the ranks of the Technical Association of the Pulp and Paper Industry, namely, the American Enginering Company of Philadelphia, makers of the well known Taylor stokers and Lo-Hed hoists, as well as ash hoppers, ash sluices, and automatic air controls. The Lo-Hed hoists are monorail electric hoists for all types of I-beams in capacities from ¼ to 12 tons. A complete line of Juruick commercial refrigerating units and ammonia compressors in capacities from ¼ to 40 tons are manufactured as well as many kinds of hydraulically controlled machines. The well known Hele-Shaw pumps and speed controls are made by the American Fluit Motors Company, a subsidiary.

The American Engineering Company is an outgrowth of a consolidation of the American Ship Windlass Company, of Providence, R. I., and the Williamson Brothers Company, of Philadelphia, established in 1857 and 1865 respectively. The company started in business by manufacturing marine windlasses and the Williamson steering gear. The representative in the Technical Association is J. G. Worker, assistant to the president.

# Silicate of Soda in Paper Manufacture*

By James G. Vail[1]

Silicates of soda are among the most useful products of the chemical industry. Incidentally they are among the most interesting. To trace their uses is to become acquainted with manufactures as different as abrasive wheels, silk, soap, pottery, the concentration of ores and the making of paper.

Although silicates of soda are of strictly mineral origin they have many of the properties which one ordinarily associates with such substances as glue, starch, casein, or other colloids of animal or vegetable origin but without odor or any tendency to ferment, putrify or attract vermin. Two further considerations are the low cost and the possibility of varying the properties to suit the needs of different industries. "Silicates of Soda" is not the name of an individual substance but rather of a class of products which may be sticky or jelly-like, quick-setting or slow-setting, purely crystalline or rich in colloidal matter, strongly alkaline or very mildly so.

Though a knowledge of these differences is fundamental to an understanding of what silicate solutions are able to do, many men who have worked with only one kind may be unaware that there are others. At least twenty distinct and different kinds are on the market, not twenty manufactured brands more or less alike, but twenty different materials each adapted to a specific use with chemical and physical properties standardized and controlled.

The sources in the earth are salt and sand. The salt is converted into salt cake or soda ash, mixed with the sand and melted into a product which looks like glass, but can be dissolved in water. Salt, sodium sulfate and sodium carbonate are definite and unvarying in composition but the constituents of glass are subject to wide variation. This is also true of soluble glasses and the differences are greater in the solutions than in the solid. The most common silicate solution has a ratio between soda and silica of one to three and a quarter. This is a syrupy liquid and contains about forty per cent of the glass which came from the furnace. The rest is water. A ratio of one to one yields a product which will crystallize while the form which contains the least alkali has almost four times as much silica, a ratio of nearly one to four. This is "S" Brand, widely used in paper sizing.

### Structural Uses

Silicates of soda are extensively used for adhesives and cements because they have strong bonding properties and because when once set they are strongly resistant to acid. Such a cement is well known as a means of setting acid-resistant brick in sulfite digesters. It differs from most silicate cements in that its setting depends upon a reaction between Portland cement or litharge and silicate of soda, whereas most silicate cements set by drying, that is, the filling matter which they contain is first held together adhesively and later undergoes the changes which make it resistant to water. The same reaction has another use in the paper mill where dry, clean cement floors are washed with a diluted silicate. This increases the wearing qualities of the cement and is very useful for keeping down dust. It also makes the surface more dense and hence more resistant to the permeation of oil or water. Painting of concrete save-alls with diluted silicate of soda has in some mills been found to provide a substantial saving by making it possible to remove accumulated slime with a hose instead of with some scraping device which took a great deal more time.

### Uses as an Adhesive

The adhesive uses of silicate of soda in connection with paper include the manufacture of corrugated paper, solid laminated fiber for shipping containers and many varieties of wallboard. The shipping containers are effectively sealed with silicate solutions applied by hand to the flaps of the container. The joint is soon stronger than the container itself for silicate is capable of forming adhesive bonds which require a load of more than 500 pounds per square inch to rupture. The variety of adhesive uses is only limited by sensitive colors, some of which are seriously altered by the mildest alkali. The same thing applies to thin papers which contain any ground wood or other stock which is readily discolored by the mild alkalinity of silicate.

Many paper mills find silicate the most convenient adhesive for capping rolls where the fact that it comes ready for use is a much appreciated convenience. It is easy to spread, but it sets quickly Besides, silicate is very economical in use so that costs are generally cut.

The technic of adjusting viscosity, setting time, wetting power of the silicate and other properties which affect its adhesive action on machines running about 200 linear feet and spreading silicate at the rate of about 15 pounds per thousand square feet is both important and interesting, but runs beyond the scope of the present paper.

### Used as a Size

Silicate of soda is, from a chemical point of view, closely related to rosin size. It is the sodium salt of a weak acid which contains more or less colloidal material according to circumstances. It reacts with alum to form a flocculent precipitate which is readily entrained in the pulp and materially affects the properties of the paper. In fact, the silicate often makes the rosin size more effective because the increased density of the sheet favors the retention of rosin and thus heightens its effect. At this point it may be well to bring out that the dilution at which size or silicate is precipitated makes a great difference in its properties. Rosin size thick enough to be syrupy when mixed with dry alum makes a granular mass entirely unsuited for use in paper. But when the same size has been strongly diluted by addition to the beater the alum causes it to separate in a finely dispersed form which is distributed evenly throughout the sheet of paper and performs the desired sizing functions. So it is with silicate of soda. The strong, syrupy solution of commerce mixed with a dry alum will produce a sandy, granular material quite unsuitable for mixing with paper stock, but when the large quantities of water necessarily present in the beater have diluted the silicate, the alum causes it to separate in a soft flocculent form which is readily entangled with the fibers and produces its characteristic effects as the paper becomes progressively drier on its way through the machine. The amounts of alum required are different for different silicates and are affected by the character of the water and the pulp. The best measure of the right amount of alum to use is the pH of the stock in the beater after the alum has been added to precipitate the silicate and the beater run long enough to secure thorough mixture. The pH scale can be explained in very difficult technical language, but it is a simple means of expressing the relative acidity or alkalinity of the solution by a series of numbers from 1 to 14 in which 7 represents the neutral point, while numbers less than this are acid and numbers higher than 7 represent alkaline conditions.

### Hydrogen Ion Control

When silicate at dilutions corresponding to those employed in the beater is gradually mixed with an alum solution the pH declines at first without causing any precipitation, then the solution seems to get progressively more turbid and finally the cloud gathers into little flocks which slowly settle out. Experiment has determined that the best pH for this precipitation is 4.5. This is easily measured with sufficient accuracy for the purpose by color comparator sets in which the change of color of suitable dyestuffs,

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such as brom cresol green, in the water to be tested is compared with a standard. If too much alum is added there is a slight tendency of the precipitae to redissolve, although silicate has been successfully used in some papers where alum is normally used in excessive amount for its effect in hardening. It usually requires about twenty-five pounds of 18 per cent. alum to precipitate a hundred pounds of "S" Brand silicate and bring the pH to 4.5. Silicates containing more alkali will require correspondingly more alum. Any acidity or alkalinity of the fiber stock will affect the amount as will also hardness of the water which tends to precipitate the silicate. The acidity of alum also varies somewhat and this, as well as the alum content, will affect the amount so that experiment is necessary in each case to determine the right conditions. It is possible to add the silicate in such a way as to produce very little effect because the conditions of its precipitaton and retention are somewhat narrower than those required for rosin size.

The amount of silicate to use must also be determined according to the particular circumstances. Ordinarily from three to five per cent. of the weight of the fiber stock will be found to give a marked effect on the smoothness of the finished sheet and somewhere in this range is the proper starting point, although quantities above and below these limits are in successful use.

### Qualities Imparted to Paper

The qualities imparted to paper by the use of precipitated silicate are several. First, there is an improvement of the surface. The precipitate which contains alumina, silica and water exerts a binding effect and those grades of paper which cause difficulty from a fuzz of loose ends of fiber are mproved by the bonding action of the mineral sizing. Along with the smoothness the paper becomes harder, as is manifest in its rattle and snap. Wrapping papers, envelopes, writing and some grades of printing paper are examples in which these qualities are much sought.

The effect of the silicate precipitate upon the formation of the sheet is to improve retention of short fiber of rosin, of clay, in fact, of anything mechanically suspended in the liquid which flows onto the wire. The amounts recommended do not appreciably slow the stock, although it is possible by using large quantities to produce this effect. In book papers the better retention of clay is a reason for using silicate but it should be pointed out that silicates have a very different effect on clay when no alum is used. Here the action is to make the clay water mixtures more liquid so that much more clay can be mixed up in the same tank and handled through pump and screens. The improvement of color in papers in which silicate has been used is often attributable more to better retention than anything else and at least one case in which the color was adversely affected could be attributed to this same phenomenon because the paper filtered out more of the suspended matter from a water which was not clear.

### Used With Starch

It has often been recommended to use silicate in connection with starch. The proper procedure is to dilute the silicate, mix the starch into the silicate solution and raise the temperature to a little over 160 deg. F. when this starch swells. This operation can then be arrested by adding additional quantities of cold water when the precipitated silicate will help to retain the starch in the web.

The retention of the aluminum silicate precipitate can be measured by noting the change of ash content in papers which normally carry a low percentage of ash. But it is to be remembered that the substance which separates from the solution is a highly hydrated material and that under the conditions appropriate to the drying of paper this precipitate is always associated with water. It is safe to assume that it is always associated with at least an equal weight of water so that when tests show an increase of 1 per cent. of ash due to the use of silicate, at least 2 per cent. of added weight is going across the paper machine and into the finished product. The texture of the aluminous precipitate when first formed is gelatinous and proceeds, as drying progresses, to the condition of a hard jelly. In the presence of starch it has a horn-like consistency and in the presence of the pulp it does not display the tendency to crack or break which is more or less characteristic of such materials. Its association with the fiber imparts to it a degree of flexibility, but it cannot be maintained that silicate sizing will improve the resistance of papers to a foldng test. Some papers required to pass folding specifications may advantageously be treated with silicate of soda for the improving of their surfaces or for the retention of useful ingredients, but the folding characteristics are primarily a function of the fiber.

### Retentions

The use of silicate of soda for paper sizing ordinarily imparts a small but definite increase in strength. From what has already been said it will be apparent that such an increase of strength depends upon the accumulation among the fibers of the gelatinous precipitate and that if this retention is not secured either by improper precipitation or by the use of a stock which is not inherently capable of holding the precipitate, no increase of strength will be secured.

The ability of silicate to affect the qualities of paper is very closely related to problems of retention and these again are affected by the degree of hydration of the stock. Silicate has a marked influence upon the rate and extent of hydration. The thickness of the paper is not a criterion of the ability to retain the benefit by the action of the silicious precipitate. Good results have been attained on papers varying as widely as tissue and heavy cover stock; on bristol boards, sulfite, writing papers and a long line of printing paper including offset.

The alkilinity of silicate is the characteristic which promotes hydration. In this connection it should be pointed out that silica in the presence of alkali exerts a restraining effect on it so that loss of fiber strength which might occur in the presence of caustic alkali is prevented in the case of silicate. Where the silicate is to be employed for promoting hydration it should be added early in the furnish and alum reserved to a period in the beating as late as possible consistent with thorough mixing or until the desired degree of hydration has been attained when the addition of the alum will stop this effect of the silicate.

### Economic Factors

It is probably true that most of the effects obtainable in paper by the aid of silicate of soda can also be secured by the proper selection of fibers and appropriate mechanical manipulation. The question is how to make a paper of the desired qualities economically. We have often found in demonstrating silicate behavior in paper mills that the fiber stock had been cut in order to save money. This is the ancient problem of attempting to make bricks without straw. In some cases it may be advisable to reduce the cost of the furnish when silicate is used, but this should not be done until it has been proven by test to be the proper course.

A very helpful means of determining when it is profitable to use silicate of soda in a paper mill is to evaluate the separate factors of cost. Every piece of equipment represents a capital investment which on the books is depreciated year by year. The time of that piece of equipment has an hourly value quite as definite as the value of labor. When this has been reckoned it will be found that reduction of the beating time and hence of the power required to bring the stock into satisfactory condition is often sufficient to pay the cost of the silicate. In one mill, for instance, the cost of beating was calculated as $1.44 per hour. This was on waybill paper and, quite aside from any consideration of improved quality, reduced selling resistance, or higher market value, the use of silicate was justified.

We, whose principal business is connected with the finding of new facts, are impressed with the method of varying one factor at a time because it has put us in possession of many new and useful pieces of information. In closing, let me say that paper is a very complicated system; to improve its quality or reduce its

cost is like trying to solve a mathematical expression in which there are several x's of unknown value. The only way to make progress is to assure ourselves that these values are as nearly fixed as possible before making comparisons. The pursuit of this method as applied to silicate of soda in the paper mill will show that it is one of many useful tools which, in the hands of skilled paper makers, will consistently yield improvements in quality and economies, but there is no general prescription. Every mill has a different set of conditions, even where the same grade of paper is being made, so that the introduction of silicate of soda will necessarily require demonstration and experiment to adapt it in each particular case.

# New Section Speed Regulator*

By R. R. Baker[1]

You as paper makers are no doubt interested in the paper machine and its operation. It is perhaps one of the most important pieces of equipment in your entire mill. Its initial cost represents a large investment and you employ a highly trained force of men to operate it. You call upon this machine to operate continuously twenty-four hours per day. The quantity as well as the quality of your production depends to a large extent upon its performance. Failure to meet these most exacting requirements may result in the loss to you as manufacturers of thousands of dollars. Surely this is a machine deserving of much careful thought and consideration.

### The Mechanical Drive

Some ten years ago the only form of drive applied to these machines was known as a mechanical drive. Such a drive was difficult to control as it was necessary to manipulate the clutches each time a section was started, stopped or operated at slow speed. Frequent use of the clutch, particularly on the heavier sections of the machine resulted in excessive wear and slippage. Then too, as it was necessary to adjust the speed of the various sections for the purpose of adjusting draw to take care of changes in roll diameter, power was transmitted to each section through flat belts operating over cone pulleys. Operating in this manner the belt was of course only effective over a very small area near its center and unless it was operated at high initial tension, excessive slippage occurred. It was necessary constantly to keep both the friction clutches and belts in first class condition and adjustment to permit operating the paper machine economically or with a reasonable degree of safety.

Realizing the many limitations of such a drive, the electrical manufacturers conceived the idea of applying individual direct current motors and control to each section of this machine and of regulating the speed of these motors so as to maintain uniform draw between sections. Such a drive obviously has many advantages over the so-called mechanical drive. The clutches and back line shaft with its many cone pulleys and vertical belt drives, which were fundamental weaknesses of the older mechanical drive, were entirely eliminated.

It was evident to the electrical manufacturers that if these direct current section motors were to be regulated for a uniform speed some type of automatically adjusted rheostat was required for use in their field circuits. It was also evident, as the speed of these motors must be held with exact precision, that some type of speed differential was required to operate the field rheostats. It was but quite natural that the electrical manufacturers should attempt to meet many of the requirements of this new development with a modification of equipment which had already been developed. This seems to be but a natural step in any industrial development.

As a result of this tendency to modify existing designs, we find in the earlier drive, that the fields of the section motors were provided with ordinary field rheostats actuated by means of speed differentials. It is true that these rheostats took on various and at times rather curious forms, but never the less they functioned on the same general principles. Many of them were complicated in both electrical and mechanical design. Others were of rather crude construction. All of them were comparatively slow in response to a sudden demand by the speed differential for a change in excitation.

In view of the serious limitations of these rheostatic types of speed controllers our company decided to look at this problem from an entirely different angle, to ignore existing designs and to develop entirely new equipment where necessary.

### Control Requirements

The problem has been a very interesting one. Here we have a device which must be extremely accurate and sensitive. It must be capable of maintaining uniform speed on the section motors during normal operation; however it must be capable of responding instantly to sudden demands on the section motor for the development of large amounts of energy. The device must be rugged and have as few wearing parts as is consistent with effective design, as it must remain in service twenty-four hours per day, six and sometimes seven days a week, during which operating period it can receive no maintenance or attention. As in certain cases it must operate in mills having limited electrical supervision, it must be simple in its operation so that any trouble may be quickly detected and corrected by less skilled electrical operators.

An extensive and careful study of this problem has resulted in the development by the Westinghouse Company of a carbon pile type quick response speed regulator provided with field forcing and anti-hunting means which is extremely simple in both its construction and operation. These quick response and anti-hunting features together with the use of a carbon pile type of resistor, which are all so essential to the best performance of the paper machine drive, represent entirely new developments in connection with differential speed regulation.

The carbon pile regulating device includes two major parts, the differential and the control element. These two elements are assembled together and mounted on or near the section motor which they control. The speed differential includes a small fractional horse power synchronous motor, a cone pulley and a differential mechanism consisting of a screw and nut and lever system. The synchronous motor has a double extended hollow shaft. One extension supports the cone pulley and the other extension supports the differential assembly. The entire equipment is mounted on ball bearings and the differential parts are totally enclosed and operate in a bath of oil. All parts are accurately machined and the clearances held within such limits as to practically eliminate all back lash or lost motion.

The synchronous motor which drives the screw member of the differential serves as the speed reference, and the nut driven by the section motor through the cone pulley as the regulated member of the differential. During normal operation both screw and nut rotate in the same direction and at the same speed. Any momentary difference in speed between these two members causes an angular displacement between the screw and nut which serves to rotate the control shaft of the differential through a yoke linkage.

### Control Assembly

The control assembly consists essentially of two carbon piles supported from a common frame and operated upon by two lever systems which serve to adjust the pressure applied to these carbon piles. The lever systems are actuated by the control shaft of the



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differential mechanism. This control equipment is mounted on a panel which is supported on the side of the differential mechanism and which is enclosed with a sheet metal cover which serves as a protection against water.

The carbon piles which consist of two stacks of thin carbon discs are connected in series with the motor fields and serve to automatically adjust the motor excitation. The resistance of these discs, in accordance with well known principles, depends upon the pressure applied to them and therefore the exact excitation required to meet any particular speed and load can be obtained by the application of the correct pressure. The adjustment of the motor excitation is not limited to a definite number of steps as it is with other types of speed regulators employing some form of step-by-step rheostat.

### Operation of the Control

The operation of the control is as follows: When the differential arm is moved either up or down as a result of the rotation of the control shaft, it operates both of the lever systems through the attached linkages. An upward movement tends to open the carbon piles and a downward movement tends to compress the piles. By a suitable arrangement of the linkages the movement of one of the lever systems and its consequent effect on the compression of the carbon piles, is many times greater than that of the other, but is however only of a transient duration.

The lever system on which the large movement takes place is referred to as the quick-response element. The other as the normal response. The movement which takes place on the normal response end represents a permanent adjustment of the carbon piles for each position of the differential arm. This, however, is not the case with the quick response element. This lever system is centered by means of two balanced springs and its final position remains approximately the same for alll divisions of the differential arm. Movement of the differential arm is transmitted to the quick response lever system through a dashpot, so that the effect on the carbon piles although very drastic for a sudden movement of the differential arm, is only of a transient nature and is removed when the centering springs have returned the system to the balanced position.

### Anti-Hunting Features

The control element is provided with an anti-hunting feature which is essential on all quick response regulators. The anti-hunting element is applied to the normal-response lever system and consists of two coils, one of which is in the armature and the other in the field circuit of the motor. For example, when a sudden load is thrown on any section of the machine, the differential arm of the regulator swings up rapidly, applying a corrective action to the normal response element and a more drastic field forcing action to the quick response element. The armature current of the motor increases as its field current is reduced and to prevent over-traveling and consequent hunting, this correction must be relieved. The increase in current through the armature coil and the decrease in current through the armature coil of the regulator, both serve to accomplish this, and is what has been termed the anti-hunting feature.

By the use of this anti-hunting feature, together with the quick response element of the control which serves to force the motor fields and which applies a corrective action in direct relation to the suddenness of the applied load, this regulator is able to meet either suddenly or gradually applied loads with a minimum of angular displacement, a condition which is essential to the best operation of the paper machine.

### Carbon Pile Regulator

The earliest commercial installation of this carbon pile section speed regulator has been in continuous operation on a 152 inch book machine for about one year and a half. The drier section of another 196 inch book machine has been under the control of this type of speed regulator for nearly a year and the same type of regulator has also been in continuous operation for one year on the drier section of a 232 inch news machine operating above 1100 feet per minute.

A 132 inch tissue machine, operating with pick-up felt and fully equipped with this latest type speed regulator has been in operation for several months and another machine so equipped is now being installed in the same mill. A 240 inch Kraft machine having a speed range of 100 to 850 feet per minute with a total of seven sections equipped with carbon pile speed regulators was started up and placed in commercial operation several weeks ago.

The excellent performance of these regulating units, now in operation, clearly indicate the merits of this device. The draws are maintained with the utmost precision, and stroboscopic tests indicate that the angular displacement which results from operating load changes on a section when equipped with this new type regulator are held within very much closer limits than with the older rheostatic type of speed regulator not provided with the field forcing and anti-hunting features. All of the regulating units in operation have given a performance record which has been free from maintenance troubles of any kind.

### Well Adapted for General Application

Due to the very high degree of accuracy of this regulator and its quick response features it is particularly well adapted for application on all classes and types of paper machines. We are now supplying this type of regulator on the drive for a 178 inch cylinder Kraft machine designed to operate from 75 to 750 feet per minute which will have the cylinder molds, primary presses, and baby presses all equipped with individual motor drives. Two book machines, one 138 inch and one 200 inch are being likewise equipped. These new type regulators are also being supplied on the drives for two 228 inch high speed news machines designed for a maximum speed of 1400 feet per minute, on a slow speed 156 inch pulp drying machine equipped with the Minton vacuum drier, having a motor drive for the main drier section and two individual motors on each of the ingoing and outgoing seals, and also on a wide speed range of 114 inch specialty machine.

The confidence which the operators of the paper machines to be equipped with these regulators have placed in this latest development has been fully justified by the excellent performance of those regulators now in commercial operation. The two outstanding advantages of this new development are, first, the ability of this regulator to make exceedingly quick response to any change without hunting or instability, and second, its freedom from maintenance or attention of any kind.

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## Penberthy Injector Co. Joins TAPPI

The Penberthy Injector Company, a leader in its field, has become associated with the Technical Association as a contributing member. The company was established in Detroit in 1886. Since then it has specialized in the manufacture of all types of jet apparatus and are recognized authorities in this field.

Of particular interest to the paper industry is the relation of John O. Woodsome to the company. When Mr. Woodsome became interested in the possibilities of controlling steam circulation for paper drying by the application of the Venturi principle, he went to the Penberthy Injector Company for assistance. He has been working with the paper industry for 22 years, concentrating for the most part on the study of temperature effects in drying various grades of paper. He is responsible for the development of the departure from the elemental type of two header systems and his final achievement is exemplified in the Penberthy venturi drier fittings. With this equipment installed on a paper machine, the temperature of each drier can be controlled and a definite rate of drying can be effected. Further details about the system can be obtained from the Paper Mill Department, Penberthy Injector Company, 1242 Holden avenue, Detroit, Mich.

# The Key To White Water Utilization*

By C. M. Baker[1]

Seldom is there such an opportunity to speak directly to the heart of an organization, the superintendent. He throbs when the executive pushes the button. He directs the orders of the executive and the findings of the technical staff through the various veins of the organization to knit together the raw materials into the finished product.

The superintendent is responsible to the executive for production and quality regardless of the new ideas thrust upon him by the technical staff, equipment and supply men, and white water fanatics. He must interpret the various ideas and put them into practical application through the operating personnel.

He knows that to produce clean, strong paper, clean, pure stock, is necessary. Great quantities of fresh water have been advocated, therefore, to wash the stock and carry it onto the machines. Unfortunately, however, this waste water carries with it valuable fibers and other paper making materials. In order to prevent these losses and curtail stream pollution, less fresh water and utilization of white water is advocated, contrary to the original conception of paper making. It therefore now becomes necessary for the superintendent to develop new ideas and procedures with his personnel which are quite contrary to those originally advocated. This is not always an easy task, in fact, usually there is much opposition. Changes in routine procedure are invariably considered the cause of any troubles that may follow, although the actual cause may be some other factor.

### Basic Principles

The basic principle involved in white water utilization is very simple. It consists of pumping the white water back into the system, and using it in the place of fresh water. In a closed system, therefore, the only fresh water necessary, is that for make-up for evaporation. In such a system the paper machine itself becomes the saveall. The fiber is recovered and utilized in the finished product.

The first step in utilization consists of returning the more concentrated white water to the beaters for beater make-up and dilution in dropping the beaters, and the second, the substitution of white water for fresh water on the showers. In some mills this has been accomplished without the use of savealls.

Where flush stock from the pulp mill is used on the paper machines the white water may be conveyed back into the pulp mill and substituted there for fresh water. Savealls are necessary to recover material from the pulp mill because relatively large quantities of water are required to wash the chemicals in solution from the pulp. Very substantial reductions, however, may be made in the quantity of water used in many pulp mills. Reduction in water consumption and white water utilization go hand in hand.

Several outstanding installations for white water utlization in various classes of the industry are described in some detail below.

### Book Mills

One book mill has reduced its volume of waste to about 1,900 gallons per ton of product, and the fiber losses to less than two pounds per ton of product, 1/10 of one per cent. Sedimentation savealls are used. Concentrated white water is used back into the beaters, and the saveall effluent back onto the showers. By maintaining a slight overflow, slime difficulties have been eliminated, or at least minimized.

Another book mill equipped two of its three paper machines with high grade savealls at a total cost of about $40,000. The suction box water and the shower water from the two front showers, those nearest the couch roll, is collected and passed through the savealls. The recovered stock is used in the machine chest and the effluent white water returned to the showers. This section of the system is therefore closed. The only fresh water used is that upon the back showers which wash the wire after the white water showers, so that the loss from this source is negligible. Based upon further studies, however, this mill is now equipping its third machine with a small tank to equalize the white water flow from which the white water will be pumped directly back onto the showers without savealls. They now consider that the expenditure for savealls was unnecessary.

### Board Mills

Several board mills are operating on closed or substantially closed systems.

In one mill the white water from several machines containing about eight pounds of stock per thousand gallons is collected into a common pit whence it is pumped to a side hill saveall. Leaving this saveall the white water contains about four pounds of stock per thousand gallons. It passes through a sedimentation clarifier. The recovered stock is used in the beaters and the effluent in the mill water supply. Originally chlorine was used for sterilization, but it is understood that this has been discontinued. The only fresh water entering the system is that necessary for evaporation, except that, due to insufficient capacity of the sump to take care of fluctuations in flow, there is some white water overflow at times.

Another board mill has reduced its fresh water consumption to about one-third by recirculation of the white water from the fan pumps directly onto the cylinder mold showers.

In another the white water of various colors is collected into a common pit, whence it is pumped directly back onto the showers except those for white liners. Chlorine is used to control slime and reduce the amount of organic matter going into solution to a minimum.

### News Print

Pulp mills are always connected with news print mills. The practice in this classification usually consists of conducting the surplus white water back to the pulp mill for use in washing the pulp. There should be no waste white water from the paper machine of a news print mill. The writer visited a mill on the Western Coast a short time ago where a fourdrinier machine was operating on news print without any showers. The wire tray had been removed except for about three feet in front of the breast roll. All the white water from the upper wire and rolls dropped down onto the inside of the wire and found its way into the pit below, without the accumulation of fiber to such an extent as to interfere with the operations.

### Kraft Mills

One kraft mill visited by the writer had reduced its water consumption to less than 20,000 gallons per ton of finished kraft paper, for all purposes including water used in the pulp mill, for boiler purposes, sewerage, etc. This was accomplished by recirculation and re-use.

### Tissue Mills

Several tissue mills operate on closed systems. In one mill each machine is provided with a highly efficient saveall, the effluent from which is returned directly to the machine as its source of water supply, and the recovered fiber to the stock chest. In another, the white water from several machines running various colors, is collected into a common pit and passed through

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a single highly efficient saveall. The recovered stock is returned to the ground wood chest and the effluent white water becomes the mill water supply. Both the white water and the small amount of fresh water used are chlorinated.

The manager of one of these mills described difficulties encountered in closing up the white water system somewhat as follows:

"I turned the problem of white water utilization over to an engineer who knew practically nothing about paper making with the request that he develop a closed system on a designated machine. He changed the piping in the basement so as to pass the white water through a saveall and returned it to the machine. Fresh water was shut off, so that it could not be secured by the machine operators. Our best operators were placed in charge of the machine. We ran for about three weeks in this manner. Each day I visited the machine and asked the boys how they were getting along. Invariably the reply was that certain difficulties were being encountered because of too much white water. At the end of about three weeks, I instructed the engineer to change the system so that nothing but fresh water was received at the machine, but to say nothing about the change. The following week on my routine visits the same complaints were made about too much white water. At the end of the week the machine operators were called in for a conference. I first secured confirmation from them on their previous statements and then advised them that they had had no white water during the past week. Our mill is now operating on a closed system."

### Showers

The showers undoubtedly have a great deal to do with the success or failure of white water utilization. The practice in the past has been to use fresh water showers of relatively high pressure. In practically all instances the stream has been directed nearly, if not quite perpendicular to the surface to be washed. Such a procedure tends to drive any fiber or stock that may be present into the wire rather than washing it off. Obviously, such a method of washing with white water is erroneous, since it will tend to drive any fibers that are present directly into the wire. White water showers should be so located and adjusted that the stream is tangential to the surface, so as to wash the material off rather than into the wire.

While visiting a board mill a short time ago the writer was advised that they had endeavored to use the water from the fan pumps on to the cylinder molds, but that this practice had resulted in the accumulation of a ridge on the mold ultimately forming a ridge in the paper. On visiting the mill it was observed that a standard make of shower was so adjusted that the sprays overlapped. The direction of the stream was perpendicular and somewhat against the direction of rotation of the mold. Where the sprays overlap a small pool formed upon the cylinder mold above the point of contact. It was at this point that the ridge formed. A readjustment of the shower on this mold so as to wash the fiber off from the mold into the vat will undoubtedly overcome the difficulty.

### Slime Control

A fundamental principle of white water utilization is cleanliness. White water from a dirty, slimy machine pit can not be utilized back into the system without encountering difficulties. Machine pits should not be catch-alls for all kinds of dirt. They must be protected by a gutter and curb around the outside to collect floor washings and prevent them from finding their way into the pit. Machine tenders and operators must be instructed and compelled not to throw wastes of any kind into the pit. In some instances it may be more practical to construct a tray under the lower wire and convey the white water into a separate collecting tank.

Piping, storage tanks, sedimentation tanks, and other equipment should be so constructed that there are no pockets nor places for the collection and accumulation of slime and dirt. Much can be done toward the control of slime merely by reconstruction of the system along these lines.

It is quite probable, however, that in closing up a white water system sterilization with liquid chlorine or by some other method will be necessary to control slime during the summer months, particularly with certain classifications such as in board mills. The common practice in the past has been to apply the chlorine to the raw water, but with a closed system a sufficient amount may not find its way into the white water to prevent the formation of slime. Chlorination of the white water itself, therefore, may be necessary. This method is being practiced in some mills successfully at the present time. If difficulties are encountered in chlorination the question should be taken up with the chlorine experts. It is possible that in some instances other methods of sterilization or slime control will be required.

### Other Difficulties

The recirculation and reuse of white water will, of course, tend to increase its temperature. Some mill operators fear this will cause difficulty in sizing. It is believed, however, that this can be overcome by modification in the procedure such as application of the sizing later during the beating, or closer to the machine.

There has been considerable discussion regarding the effect of chlorination upon color but experience indicates that sufficient chlorine may be applied to control slime without interfering with the normal processes of coloring. In other words, a very small amount of chlorine is effective in the control of slime.

With the return of the white water into the system modifications will probably be necessary in the formula initially set up for a run. This is due to the fact that a large amount of the chemicals and materials that originally found their way into the sewers are returned into the sheet, which, however, results in a further saving.

In fact, considerable study and adjustment may be necessary in the mill processes in the return and utilization of white water. The financial returns, however, will more than repay for these difficulties.

### The Key

In the final analysis the superintendent is the one who must install and place in operation any program for white water utilization. He must first be sold as to its practicability and possibility. Then it is necessary for him to sell the process to his mill personnel.

If certain difficulties are encountered in connection with the recirculation and reuse of white water he must not jump to the conclusion that they can not be overcome as did the machine operators in the tissue mill referred to above. He must endeavor to locate the difficulty and adjust conditions so as to overcome them.

Precedence and custom are important factors with which to contend. Although white water was not involved, the following illustration emphasizes this point.

The manager of a certain large company wished to discontinue a branch mill where a special grade of paper was being manufactured. The mill operators opposed, saying that this could not be made at the home plant because the water was not satisfactory. The manager then said, "We will give you the same water by purification and adjustment of the chemical constituents." "But our water comes from a spring and is always cold," replied the operators. "Very well, then, we will install refrigeration," was the come back of the executive. Still the operators contended the paper could not be made at the home plant.

The manager then decided to make some of the special grade at the home plant under existing conditions. This paper was placed on the market with the other. Certain customers heard that this had been done and sent several batches of the paper to a laboratory

for tests and analyses. The report was that, while all samples were quite satisfactory, there was lack of uniformity in the different shipments, and it was suggested that all be like sample No. 3. On tracing back the invoices it was learned that No. 3 was made at the home plant.

This story may seem somewhat humorous and far-fetched, nevertheless such opinions constitute a real problem and a real factor with which the superintendent has to contend, and one which it is at times extremely difficult to overcome. In fact in the case referred to the mill that the manager wished to close is still operating. For this reason it is frequently very difficult to develop and install a closed white water system. Persistence and perseverance, however, will produce results.

Methods have been developed and are in use for efficient white water utilization. Their general application is all that is now required. This is a function of the superintendents. The superintendents, therefore, now hold the key to the problem of white water utilization.

# New Type Drier For Fine Papers *

By J. J. Sullivan[1]

We thank you for the time accorded us to bring this paper before your convention as it gives us an opportunity to bring to your notice an entirely new type of drier used in connection with the resizing and drying of writing papers. This drier is different and revolutionary in the mechanical method by which it conveys the paper through the drier.

The drier gives a surface and richness to the paper that is ideal, even better than loft or pole dried. The paper has a higher mullen and better tear than the same paper going through the dry loft hung on poles. I think it would be well to mention to you that this drier has been designed to meet certain ideal conditions in the handling of paper:

First—This drier was so constructed that in the conveying of the paper, no stick marks are produced.

Second—The paper is conveyed through the drier in such a way that it is practically under no tension and is free to shrink to any desired extent. This condition allows the paper to cockle freely.

Third—The drier itself is an exceedingly compact device. The main body of the drier is not over 10 feet high and is less than 25 feet in length. It has been designed to handle papers up to about 48 inches in width and the width of the drier overall is about 9 feet; yet in this small sized drier the holding capacity is about 400 linear feet of paper.

### Time in Dryer

The actual time which the paper is in the drier varies from 1½ minutes to about 3 minutes. This paper can be carried through the drier at about 150 linear feet per minute.

From this you can see it is only a matter of less than five minutes from the time the paper enters the sizing tub until it comes out of the delivery end of the drier cockled and finished. This you can readily see is a very valuable item in enabling you to make quick delivery on rush orders.

### A Festoon Drier

I have not endeavored as yet to describe to you the manner in which this drier operates. As it is my desire to have as many of you as are interested to visit our plant here in Philadelphia, we will have a full sized machine threaded with a continuous sheet of paper and will be able to give you a complete mechanical demonstration of its working, but for the benefit of some of you who may not be able to visit our plant, I will describe the machine to you which is of the festoon type. From this you can readily understand how we get so much paper in such a small space. This drier differs fundamentally from any other type of festoon drier in the two following respects:

### Description

Each time the festoon is being formed between the carrying rolls, the small tubing or floating roll is dropped into the festoon. The floating roll is dropped in at the beginning of the formation of the festoon so that it gently rolls to the bottom of the festoon.

The main carrying poles are also tubes or small rolls and these are caused to rotate as they move through the drier. When they do so this causes the paper to slowly travel over these carrying rolls. The rolls thus advance through the drier just the same as in the ordinary festoon type, but you can readily see it is only necessary to have these rolls rotate very slowly as the advance of the paper through the drier is effected mainly, by the lateral motion of the carrying rolls through the drier. The small rolls which are placed in the bottom of the festoons rotate freely, due to the motions of the upper rolls and they act in such a way as to put an exceedingly light tension on the continuous sheet of paper. The slight tension put on the paper by these floating rolls prevents buckling or wrinkling of the paper. The paper is allowed to shrink and thus this condition allows the paper to cockle as it is being conveyed. These floating rolls or tubes are automatically placed in the festoon at the feed end of the drier and automatically removed at the delivery end of the drier, also automatically carried back and again placed in the festoon at the feed end of the drier.

I assure you this is a very unique form of drier and has some very valuable features connected with the drying of writing papers, which, so far as I know, have never been embodied in a paper drier. The floating rolls I have described are very light, weighing only three or four pounds and for this reason allow the paper to shrink and form the cockle without any resistance.

### Advantages

You can also readily understand with an arrangement of this sort there is a very substantial labor saving and saving of floor space, also time. There are several other advantages gained by the use of this drier.

The control of the temperatures and the air circulation during the drying period are almost ideal, as this type of drier is equipped with an automatic temperature control by which you can maintain it at any desired temperature. This machine was unusually well thought out before placing it on the market and was provided with automatic controls so that if for any reason the web of paper should be broken, the machine will be automatically shut down until the broken place has been mended. There is, however, no place in the entire machine where any strain is is put upon the paper that would tend to break it. The only thing which might cause an occasional break would be some large, defective place in the sheet of paper. It is really remarkable how large a defective place there may be in the sheet of paper in the way of a tear or bad spot before giving any trouble whatever. Nevertheless, these automatic devices have been provided so as to aid the operator and prevent any unnecessary damage being done.

The drier is built entirely of steel, is well insulated and at the same time is made so that it is readily accessible. At the ends of the machine and at the side, large hinged doors are provided so that access may be had to the drier instantly.



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[1] Proctor & Schwartz, Inc., Philadelphia, Pa.

The drying is accomplished by means of heated air which is recirculated and so far drying is being done at very low temperatures. These temperatures, as mentioned before, are automatically controlled and can be adjusted as desired.

In conjunction with this drier it is necessary for the purchaser to furnish the sizing rolls at the feed end of the machine, the tension rolls and the winder or sheet cutter at the delivery end of the machine.

In summing up the above, I would like to repeat that this new type of drier does away with expensive loft drying, is small and compact, does away with stick marks, allows free shrinkage of the paper which produces the cockle, saves time, gives paper of higher strength and saves labor. These elements combined mean a superior paper at less cost.

This company has been developing this drier over a period of the past four years and, at the present time, have several installations which have been in use for about two years. One of these installations is on writing paper and some of the others are on special paper fabrics which come in continuous sheet form, the same as writing paper.

This drier is a product of the firm of Proctor & Schwartz, Inc., Philadelphia, Pa. They are the largest manufacturers of driers in the world and have a very large engineering and research department devoted exclusively to the development of new kinds of driers.

There are but very few fields of drying into which this company has never gone. It is their principle not to enter into any new field of drying unless they can develop a type of machine which they feel will serve their customers better than that which is being offered on the market at that time. This company has been making driers for very close to fifty years and up until the development of this drier, they have never offered anything to the writing paper industry.

In addition to the writing paper drier, Proctor & Schwartz have a number of very large sulphite pulp driers in constant successful operation on the west coast. This company is provided with a large well equipped research department which is at the service of any one having drying problems. This research work is done without charge or obligation of the user to the company.

## Container Liner Stuff Preparation

SPECIAL INQUIRY No. 144

A member writes: "In mills manufacturing container liner, what is:

1. The usual amount of trash in the waste papers used for filler stock.
   a. Rags
   b. Metal
   c. Other materials
2. The proportion of mixed papers in the waste papers used.
3. The percentage of chemical wood pulp in the total furnish to the machine.
4. The percentage of total production of the various grades, as 85 test, 110 test, 125 test, etc.
5. The basis weight of each grade.

"I believe that a pooling of this information given anonymously would lead some of the mills to improve their operation in order to attain the results of the most efficient mills, and especially a comparison of the amount of trash in mixed papers would be of benefit to the purchasing agents of the mills.

"In answering, it might be well for each mill to state how their waste papers are handled, i. e. with continuous breaker beater or furnished directly to the filler beaters. Also, if the continuous breaker beater is provided with mechanical means for removing the waste, such as Shartle rag catcher, Murphy junk remover, etc."

All those responding to this inquiry, will receive in blank, a transcript of the replies received. Send replies to Secretary of TAPPI, 18 East 41 street, New York, N. Y.

## TAPPI Notes

Victor P. Thorpe, formerly with the British Columbia Pulp and Paper Company is now connected with the Powell River Company, Powell River, B. C.

Roy L. Davis, student at the Institute of Paper Chemistry is working this summer at the S. D. Warren Company at Cumberland Mills, Maine.

Albert B. Gregg who until now was with the Fibre Making Processes of Chicago, has gone with the J. O. Ross Engineering Corporation and is now erecting and starting their Wagner furnaces at Chillicothe.

Eric Lindeberg formerly with the Dominion Engineering Works, Montreal, has recently resigned his position, and is now at Nipigon, Ontario.

G. A. Peterson, who until now was engineer with the International Paper Company, New York, has gone with Rice, Barton & Fales, Inc. of Worcester, Mass.

E. T. Bellew for some time with L. A. De Guere as engineer on the West Coast, is now connected with the Sitka Spruce Pulp and Paper Company at Empire, Ore.

H. E. Walter, formerly connected with the Container Corporation of America's plant at Cincinnati, has recently gone with the Waldorf Paper Products, St. Paul, Minn.

D. K. Pattillo, recently resigned his position with the National Aluminate Corporation of Chicago, and is now with the Paradon Manufacturing Company of Arlington, N. J.

K. A. Hulton for some months with the Cushmoc Paper Company as plant engineer, has left Augusta and is now in New York at 261 Hicks Street, Brooklyn, N. Y.

## Centennial of Modern Weighing

To commemorate the invention of the modern platform scale by Thaddeus Fairbanks in 1830 business and industrial leaders of the nation, as well as many foreign countries, will gather in the historical city of St. Johnsbury, Vermont, on July 4 to pay tribute to the memory of Thaddeus Fairbanks, "father of modern weighing," who gave to the world its first accurate standard of weights one hundred years ago.

Announcement of a three day celebration of the centennial of the invention of the modern weighing machine beginning July 4, was made recently in Chicago by W. S. Hovey, President of Fairbanks, Morse & Company, which is the outgrowth of the small scale manufacturing business started a hundred years ago at St. Johnsbury by Thaddeus Fairbanks and his brothers Erastus and Joseph P. Fairbanks on an investment of $4,000.

Former President and Mrs. Calvin Coolidge will be guests of honor at the celebration which has the sponsorship of the Vermont Historical Society, the New England Advisory Council and the Chamber of Commerce. Mr. Coolidge has a keen personal interest in the affair for the reason that he was at one time a student at the St. Johnsbury Academy which was sponsored and supported by Thaddeus Fairbanks.

The principal feature of the program will be an historical pageant depicting the progress during the last century in the evolution of the modern weighing machine and its profound influence upon human welfare and world commerce. There will also be a notable exhibition of original patent models of scales invented by Fairbanks, which have been borrowed for the occasion from the patent office.

## Olympic Forest Products Mills To Start Soon

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., May 15, 1930.—Olympic Forest Products Mills will have the pulp mill and wood mill at Port Angeles, Wash., ready for operation about June 1 according to present progress in construction. Installation of machinery is now under way and the Minton vacuum dryer and other machine room units will be assembled in the next few weeks.

# CONSTRUCTION NEWS

*A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills*

## Construction News

**Pittsburgh, Pa.**—The Keystone Box Company, Twenty-eighth and Smallman streets, manufacturer of corrugated paper and fibre boxes and containers, is completing plans and will soon award general contract for a new one-story fireproof addition to plant, 22 x 100 feet, reported to cost close to $25,000, with equipment. Peter Dietz, Lyceum Building, is architect and engineer. M. H. Nolan is president and treasurer.

**St. Helens, Ore.**—The Fir-Tex Insulating Board Company is pushing completion work on its new local board mill and expects to have the unit ready for production in July. The plant has been equipped for an initial output of over 6,000,000 feet of finished material a month, or about 75,000,000 feet annually, and will be developed to that capacity at an early date. The mill is said to represent an investment of close to $1,500,000, with machinery. Insulating lath will also be produced.

**Burlington, N. J.**—The Neidich Process Company, St. Marys street, manufacturer of processed paper products, etc., has completed plans and awarded general contract to the Karno Smith Construction Company, Broad Street Bank Building, Philadelphia, Pa., for proposed new addition to plant, comprising a top story extension to present unit, 60 x 128 feet, and improvements in existing structure, reported to cost close to $80,000, with equipment. It is proposed to begin work immediately. A contract for sprinkler equipment has been let to the Grinnell Company, Inc., 420 Lexington avenue, New York. Lockwood, Greene Engineers, Inc., 100 East Forty-second street, New York, is architect and engineer, and will supervise work.

**Jamestown, N. Y.**—The Economy Folding Box Company, Inc., recently organized with capital of $20,000, plans operation of local plant for the manufacture of folding paper boxes and containers. The company is headed by Frank S. Shuman, 529 West Third street, Jamestown. Others interested are Merrill K. Miles, Oakmont, Pa.; and Thomas P. Horan, 104 Pasadena street, Pittsburgh, Pa.

**Detroit, Mich.**—The Tullar Envelope Company, 2766 West Fort street, has approved plans for extensions and improvements in plant for increase in present capacity, awarding general contract to Asselin Brothers, Detroit, estimated to cost more than $25,000, with equipment, John Stahl & Co., McKerchey Building, Detroit, are architects.

**Bogalusa, La.**—Regarding recent reports that the Bogalusa Paper Company was planning an expansion and improvement program, the company has announced that no work of this kind will be carried out at the present time. Contract was recently let for a small one-story mill addition, and it is understood that this has now been completed.

**Indianapolis, Ind.**—The Standard Paper Company, 225 West South street, and the Capital Paper Company, same address, affiliated organizations, have established a new plant unit for the manufacture of tissue papers, and will operate on a heavy production schedule. A warehouse has also been placed in service for storage and distributing.

**Ampthill, Va.**—The duPont Cellophane Company, River road, Buffalo, N. Y., with executive headquarters in the duPont Building, Wilmington, Del., will break ground for new mill for the manufacture of moisture-proof transparent wrapping materials, to be located at Ampthill, near Richmond, and expects to have superstructure in progress within 30 to 60 days. The plant is estimated to cost close to $4,000,000, with machinery. In connection with this expansion, the company has authorized extensions and improvements in similar plant at Old Hickory, Tenn., to double the present output, with cost placed in excess of $2,000,000, including equipment. Work on initial buildings has been started and project is expected to proceed rapidly. The duPont company is also reported planning an addition to the plant of its Viscoloid Company, Leominister, Mass., manufacturer of composition materials, reported to cost over $250,000. The duPont Engineering Company, duPont Building, Wilmington, is in charge of the different projects.

**Stuttgart, Ark.**—The Chamber of Commerce is at the head of a project to establish a local mill for the production of paper products, using rice straw, or the waste from local rice mills, as source of raw material. There are five mills of this kind in the vicinity. It is proposed to interest capital to develop the project in the near future.

**Marerro, La.**—The Celotex Company, Chicago, Ill., manufacturer of wallboard products is running on a capacity schedule at its main mill at Marerro, near New Orleans, utilizing new production facilities recently provided. The plant is on a basis of approximately 1,800,000 feet of finished board a day, or an increase of close to 500,000 feet at this time a year ago. A full working force is employed. It is proposed to hold to the present schedule for an indefinite period.

**Kalamazoo, Mich.**—Negotiations for a merger of the Sutherland Paper Company, Kalamazoo, and the Container Corporation of America, Chicago, Ill., have been discontinued and no merger, it is understood, is being considered at the present time.

**Chicago, Ill.**—The Mendelson Brothers Paper Stock Company, 910 South Michigan boulevard, has conveyed its property at the southeast corner of Thirty-first street and Kedzie avenue, extending to the river, to the Waterway Products Company, which will use for another branch of service.

**Tacoma, Wash.**—In connection with the recent acquisition of the former local mill of the Union Bag and Paper Corporation, New York, to the Pacific Pulp Mill Corporation, lately organized as a subsidiary of the St. Regis Paper Company, Watertown, N. Y., it is said that the new owner is planning for increased capacity in the near future. The plant will be operated for the production of kraft pulp to be utilized by the parent organization at its mills in New York and other eastern points, for the manufacture of kraft paper stocks and it is proposed to maintain the Tacoma plant primarily for that purpose and future projected expansion will be for raw pulp supply. The plant has a present rated capacity of 45,000 tons of pulp a year.

**Philadelphia, Pa.**—The Keystone Index Card Company, Inc., manufacturer of card stocks, etc., has leased its factory at 217

North 33rd street, to the Sharpless-Hendler Company, which will use for another line of production. The Keystone company is now maintaining headquarters and main operations at 3225 Race street.

**Danville, Ill.**—The Federal Court, Judge Walter C. Lindley, has appointed F. E. Butcher and C. C. Tilton, Danville, as receivers for the Cornstalks Products Company, Inc., a Delaware corporation, capitalized with 335,682 shares of common stock, and 1465 shares of preferred stock. The company has been operating a mill in this vicinity for the manufacture of paper and cellulose, using cornstalks as raw material, and it is understood that the receivers will continue production at the mill for the time being. It is proposed to arrange for a reorganization of the company under new management at an early date.

**Montreal, Que.**—Fire, May 24, damaged a portion of the building of the Kander Paper Stock Company, Ltd., 300 McCord street; an official estimate of loss has not been announced. The damage will be replaced.

**Hilo, Hawaii**—Following announcement in these columns last week, regarding the organization of a new company to take over and expand the Hawaii Cellulose, Ltd., the new interest has been formed as the Hawaii Cane Products, Ltd., with headquarters at Honolulu. The corporation is capitalized at $10,000,000, and is arranging for the early sale of stock in amount of $2,250,000, of which approximately one-half will be used for the construction of proposed new mill at Hilo, for the manufacture of paper and fibre products using bagasse, or sugar cane waste. It is understood that Theodore Davies & Company, and Alexander & Baldwin, Honolulu, representing a number of Hawaiian sugar estates, will be prominent in the new organization. It is proposed to form a United States sales division, with headquarters at San Francisco, Cal.

### New Companies, Etc.

**Queens, N. Y.**—Car de Van Paper Company, Inc., has been incorporated with capital of $50,000, to manufacture and deal in paper stocks, and paper products. The company is headed by Edward T. Connell and Samuel D. and Vincent C. Muessman, 32 Sixty-second street, Woodside. Company is represented by Bernard J. Ferguson, 60 Roosevelt avenue, Woodside.

**Boston, Mass.**—Driscoll Paper Company has been incorporated with capital of $10,000, to manufacture and deal in paper products. Company is headed by Maurice F. Driscoll, president; and John J. Greene, 122 West First street, South Boston, treasurer.

**Chicago, Ill.**—The Central Paper Stock Company has been incorporated with a capital of $30,000, to take over and expand the company of same name with headquarters at 2455 Elston avenue. The incorporators of the new organization include Frank Bushnick and Alexander Wenikoff.

**New York, N. Y.**—The Hefter Folding Carton Corporation, 666 Hudson street, has filed notice of increase in capital from 350 to 850 shares of stock, of which 750 are preferred, with par value of $100 each, or $75,000, and 100 shares of common stock, no par value.

**Chicago, Ill.**—The Consumers Paper Company has been incorporated with capital of $20,000, to deal in paper stocks of various kinds. The company will take over and succeed to the organization of same name with headquarters at 842 West Lake street. The incorporators include Harry A. Rakley and Abraham Rakovsky.

## Starts Operations at Ford Edward Mill

FORT EDWARD, N. Y., June 2, 1930.—The International Paper Company has resumed operations in its local branch after a curtailment since early in January. At that time it was announced that operations were being suspended because bleached pulp could be bought at a lower price than the unbleached product. It is claimed, however, at the present time it is more economical to buy the unbleached product and operate the plant.

## Arrange To Handle Russian Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., May 26, 1930.—The contract for moving approximately 300,000 tons of pulpwood up the Hudson River to the Port of Albany for final shipment to mills here was this week awarded to the Williams Line, Inc., of New York, by the International Paper Company. The cargo is to be shipped on ocean liners from Archangel, Russia, during the summer. Announcement that the huge shipments would be routed through the Albany terminal was made early last week by officials of the Williams concern which controls a fleet of fifty barges. The schedule calls for the loading of approximately one hundred cars a day at the port from whence the shipments will be moved by rail to the mills here.

Due to the fact that the channel in the Hudson is not yet wide enough to permit the passage of ocean vessels it was announced that the pulpwood will be unloaded in New York harbor to be shipped by barges to Albany. However, it was learned that by late this year the channel will have been deepened sufficiently to permit passage of boats carrying 10,000 tons direct to the terminal. Construction of additional facilities for handling the huge shipments is now under way by the Albany Port District Commission which plans to have everything in readiness for their arrival. Terminal machinery of the Williams concern will be used in transferring the shipments to this place.

The movement of this tonnage is the forerunner of the operation of the Albany terminal on a large scale despite the fact that the Hudson Channel has not yet been fully completed. The first ocean cargo ships to arrive at the terminal are due next week from Nova Scotia carrying approximately 5,000 tons of pulpwood for the International Paper Company, from where it will be loaded into freight cars for delivery to the mills in Northern New York.

## Conklingville Hydro-Electric Plant Dedicated

CONKLINGVILLE, N. Y., June 2, 1930.—The new hydro-electric plant of the New York Power and Light Corporation was formally dedicated this week under elaborate ceremonies with the unveiling of a bronze tablet in commemoration of the late Elmer J. West. The plant is to be operated with water released from the Conklingville Reservoir which is being financed by prominent paper mills of Northern New York. Among those attending were officials of the Niagara Hudson Power Company and the executive staff of the Hudson River Regulating Board.

An address written by Roger W. Babson, of the A.P.W. Paper Company, was read during the exercises. He called attention to the progressive spirit of Mr. West and lauded him for work in the development of hydro-electricity. He also brought out the fact that Elmer West was associated with the late Eugene Ashley in 1898 as a director and general manager of the Kanes Falls Pulp Company in addition to being prominently identified with numerous power concerns.

## Compensation Court Makes Awards

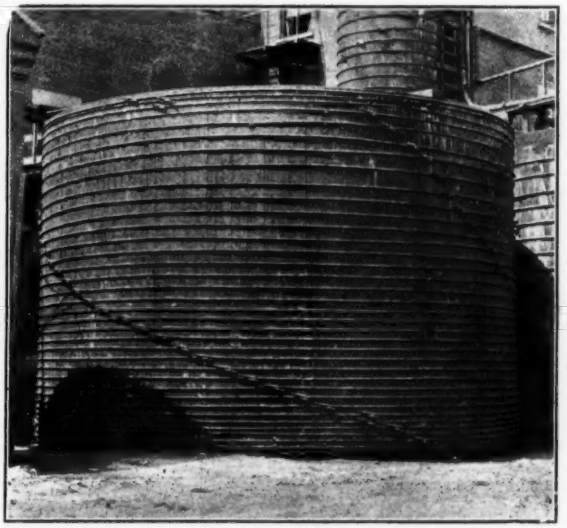
CARTHAGE, N. Y., June 2, 1930.—At a session of Compensation Court this week presided over by Referee Richardson final settlement was made in the case of Richard Countryman, who was seriously injured while employed by the Carthage Pulp and Board Company. He agreed to accept $4,000 from the State Insurance fund although the payment is subject to a report of the bureau of rehabilitation. Albert Dillon was awarded $1,587.46 for injuries received while working at the Gouverneur mill of the Loomis Talc Corporation. The case of Fred Slade, an employee of the Oswegatchie Paper Company, is being contested on the ground that his condition is not due to injuries. The injured man claimed that he slipped while at work and was seriously hurt. An award of $200 for lost time was granted Lyman Huffman, an employee of the Bagley & Sewall Company, and the case was continued for further examination.

# LAND O'LAKES CASEIN

High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

LAND O' LAKES CREAMERIES, INC., MINNEAPOLIS, MINN.
New York City - Chicago - Boston - Philadelphia - Pittsburgh - Syracuse

## WOOD TANKS TILE



*Blow Pit and Vomit Stack at Marathon Paper Company Mill.*

NO TANK is too large and none too small for our tank-making equipment and stocks. We cater to the needs of the paper industry. Blow Pits, Vomit Stacks, Stock Tanks, Acid Storage Tanks, Stuff Chests, Agitators, etc. See our Condensed Catalog in Paper and Pulp Mill Catalog. Ask us about our Glazed Tile Tanks.

*Tank Builders Since 1867*

KALAMAZOO TANK AND SILO CO.
KALAMAZOO, MICHIGAN

Your Card in This Space Will Bring Results

## RHOADS TANNATE WATERSHED LEATHER BELTING

**Before purchase, Doubt!**
***But now—***
**Experiencing a new Pleasure!**

A PAPER mill superintendent says it is a pleasure to pass his stock pump, now equipped with a Tannate Watershed Belt, and not have to stop and fix it as was often required when the pump was driven with a rubber belt.

The Tannate was put in on trial in the face of considerable doubt. But the doubt has turned to pleasure in possession. As a result Tannate has been installed on other drives in this mill.

The great strength and unusual grip of Rhoads Tannate Watershed Belts, together with their *waterproofness* make them a very real economy, year by year.

Perhaps you also doubt the possibility of Tannate Watershed Belting being as good as it is; but remember it is sold under the Rhoads Service Guarantee, and you may find, through a trial belt or two, that there is a saving in both worry and money for you, too.

J. E. RHOADS & SONS
Philadelphia, 37 N. Sixth St.

New York, 104 Beekman St. Atlanta, 70 Forsyth St., S. W.
Chicago, 24 N. Clinton St. Cleveland, 1224 W. Ninth St.
FACTORY AND TANNERY, WILMINGTON, DELAWARE

# IMPORTS OF PAPER AND PAPER STOCK

## NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

## NEW YORK IMPORTS

WEEK ENDING MAY 31, 1930

### SUMMARY

Cigarette paper .....1027 cs.
Wall paper .....85 rolls, 3 pkgs., 16 bls., 22 cs.
Paper hangings .....7 bls., 6 cs.
News print .....654 rolls
Printing paper .....161 rolls, 42 bls., 109 cs.
Wrapping paper .....77 bls., 42 cs.
Tissue paper .....17 cs.
Decalcomania paper .....33 cs.
Drawing paper .....7 cs.
Filter paper .....10 cs.
Surface coated paper .....72 cs.
Metal paper .....2 cs.
Gold coated paper .....3 cs.
Photo paper .....4 cs.
Colored paper .....30 cs.
Parchment paper .....5 cs.
Writing paper .....5 cs.
Aluminum paper .....17 cs.
Caoutchouc paper .....6 cs.
Wafer paper .....11 cs.
Wadding .....50 bls.
Miscellaneous paper .....162 rolls, 319 cs.

### CIGARETTE PAPER

American Tobacco Co., La Bourdonnais, Bordeaux, 900 cs.
Liggett & Myers Tobacco Co., La Bourdonnais, Bordeaux, 28 cs.
Liggett & Myers Tobacco Co., Carinthia, Liverpool, 51 cs.
Standard Products Corp., France, Havre, 48 cs.

### WALL PAPER

The Prager Co., Belgenland, Antwerp, 85 rolls.
Irving Trust Co., A. Ballin, Hamburg, 15 cs.
F. J. Emmerich, A. Ballin, Hamburg, 3 bls., 2 cs.
Globe Shipping Co., A. Ballin, Hamburg, 7 bls., 1 cs.
W. H. S. Lloyd & Co., Rotterdam, Rotterdam, 2 cs.
D. C. Andrews & Co., Pr. Roosevelt, Hamburg, 2 cs.
R. F. Downing & Co., Minnekahda, London, 3bls.
J. E. Bernard & Co., Olympic, Southampton, 3 pkgs.
Kensington Wallpaper Co., Brazil Maru, Hamburg, 3 bls.

### PAPER HANGINGS

W. H. S. Lloyd & Co., Minnekahda, London, 2 bls.
A. C. Dodman, Jr., Inc., Minnekahda, London, 1 ble.
A. C. Dodman, Jr., Inc., Carinthia, Liverpool, 2 bls.
W. H. S. Lloyd & Co., Carinthia, Liverpool, 1 ble., 3 cs.
Whiting & Patterson Co., Inc., Olympic, Southampton, 1 cs., 1 ble.
F. L. Kramer & Co., Olympic, Southampton, 2 cs.

### NEWS PRINT

Perkins Goodwin & Co., A. Ballin, Hamburg, 42 rolls.
Parsons & Whittemore, Inc., Dresden, Bremen, 407 rolls.
——, Stavangerfjord, Oslo, 205 rolls.

### PRINTING PAPER

E. Dietzgen & Co., A. Ballin, Hamburg, 8 cs.
C. Schleicher Schull Co., A. Ballin, Hamburg, 2 bls.
—— A. Ballin, Hamburg, 87 rolls. 42 bls.
E. Dietzgen & Co., Rotterdam, Rotterdam, 40 cs.
International F'd'g. Co., Rotterdam, Rotterdam, 45 cs.
C. Steiner, Rotterdam, Rotterdam, 1 cs.
C. Steiner, Dresden, Bremen, 5 cs.
A. S. Zabriskie, Pr. Roosevelt, Hamburg, 74 rolls.
W. A. Foster & Co., Caledonia, Glasgow, 10 cs.

### WRAPPING PAPER

Sylvania Industrial Corp., Belgenland, Antwerp, 42 cs.
Irving Trust Co., A. Ballin, Hamburg, 6 bls.
C. Steiner, Rotterdam, Rotterdam, 71 bls.

### TISSUE PAPER

F. C. Strype, Carinthia, Liverpool, 17 cs.

### DECALCOMANIA PAPER

C. W. Sellers, A. Ballin, Hamburg, 2 cs.
C. W. Sellers, Europa, Bremen, 8 cs.
L. A. Consmiller, Europa, Bremen, 1 cs.
B. F. Drakenfeld & Co., Baltic, Liverpool, 22 cs. (duplex).

### DRAWING PAPER

J. Henschel & Co., A. Ballin, Hamburg, 1 cs.
Keuffel & Esser Co., Lancastria, London, 1 cs.
G. W. Sheldon & Co., American Trader, London, 2 cs.
H Reeve Angel & Co., Inc., Minnekahda, London, 3 cs.

### FILTER PAPER

H. Reeve Angel & Co., Inc., Minnekahda, London, 10 cs.

### SURFACE COATED PAPER

Gevaert Co. of America, Belgenland, Antwerp, 71 cs.
H. Fuchs & Son, Belgenland, Antwerp, 1 cs.

### METAL COATED PAPER

Titan Shipping Co., A. Ballin, Hamburg, 2 cs.

### GOLD COATED PAPER

F. Murray Hill, Dresden, Bremen, 3 cs.

### PHOTO PAPER

Medo Photo-Supply Co., Minnekahda, London, 4 cs.

### COLORED PAPER

S. Gilbert, Dresden, Bremen, 30 cs.

### PARCHMENT PAPER

A. M. Schmidt, Europa, Bremen, 5 cs.

### WRITING PAPER

Gimbel Bros., Liberty, Havre, 1 cs.
Distinctive Writing Paper Co., France, Havre, 4 cs.

### ALUMINUM PAPER

H. D. Catty Co., Belgenland, Antwerp, 17 cs.

### CAOUTCHOUC PAPER

American Express Co., A. Ballin, Hamburg, 6 cs.

### WAFER PAPER

W. L. Haas, Rotterdam, Rotterdam, 11 cs.

### WADDING

Dendix Paper Co., Rotterdam, Rotterdam, 50 bls.

### MISCELLANEOUS PAPER

Miller Wright Paper Co., Rotterdam, Rotterdam, 2 cs.
Tamm & Co., Rotterdam, Rotterdam, 2 cs.
F. C. Strype, Rotterdam, Rotterdam, 4 cs.
The Borregaard Co., Inc., Gripsholm, Gothenburg, 162 rolls.
E. H. Sargent & Co., Gripsholm, Gothenburg, 12 cs.
Globe Shipping Co., Dresden, Bremen, 17 cs.
Standard Products Corp., Lafayette, Havre, 36 cs.
G. W. Sheldon & Co., Olympic, Southampton, 1 cs.
Keller Dorian Paper Co., France, Havre, 25 cs.
J. D. Smith & Co., France, Havre, 4 cs.
Houbigant, Inc., France, Havre, 7 cs.
American Express Co., France, Havre, 75 cs.
Standard Products Corp., France, Havre, 105 cs.
W. Strassburger Co., Toba Maru, Canton, 2 cs.
Whitfield Paper Works, Toba Maru, Kobe, 4 cs.
Y. Yabuki, Toba Maru, Kobe, 8 cs.
J. H. & G. B. Siebold, Japanese Prince, Hong Kong, 15 cs.

### RAGS, BAGGINGS, ETC.

New York Trust Co., A. Ballin, Hamburg, 28 bls. rags.
New York Trust Co., Lancastria, London, 53 bls. new cuttings.
J. Cohen Son & Co., Lancastria, London, 22 bls. paper stock.
International Trust Co., Dresden, Bremen, 43 bls. rags.
Chemical Bank & Trust Co., Dresden, Bremen, 112 bls. rags.
Arkus, Inc., Baltic, Liverpool, 48 bls. rags.
Darmstadt, Scott & Courtney, Bellflower, Manchester, 19 bls. rags.
Chase National Bank, Bellflower, Manchester, 76 bls. bagging.
E. J. Keller Co., Inc., Bellflower, ——, 69 bls. bagging.
C. R. Spence & Co., N. Y. City, Bristol, 276 bls. rags.
C. R. Spence & Co., Caledonia, Glasgow, 93 bls. rags.
——, Caledonia, Glasgow, 145 bls. rags.
Darmstadt, Scott & Courtney, Liberty, Havre, 71 bls. new cuttings.
D. M. Hicks, Inc., Liberty, Havre, 71 bls. rags.
V. Galaup, Liberty, Havre, 56 bls. rags.
E. J. Keller Co., Inc., Liberty, ——, 14 bls. rags.
N. Schwab, City of Alton, Rotterdam, 39 bls. rags.
E. J. Keller Co., Inc., City of Alton, ——, 31 bls. rags.
Anglo South American Trust Co., London Citizen, Dundee, 370 bls. paper stock.
Brown Bros. & Co., London Citizen, Dundee, 83 bls. paper stock.

### CASEIN

Kalbfleisch Corp., Voltaire, B. Ayres, 1607 bags.
Kalbfleisch Corp., Southern Prince, B. Ayres, 964 bags.
Crawford Keen Co., Southern Prince, B. Ayres, 617 bags.

### OLD ROPE

W. Steck & Co., Belgenland, Antwerp, 237 rolls.
International Purchasing Co., Examiner, Genoa, 142 coils.
Brown Bros. & Co., Belgenland, Antwerp, 49 rolls.
Brown Bros. & Co., Gripsholm, Gothenburg, 81 coils.
Brown Bros. & Co., La Bourdonnais, Coruna, 12 coils.
Brown Bros. & Co., La Bourdonnais, Vigo, 49 coils.
Brown Bros. & Co., Fred VIII, Copenhagen, 55 coils.
Brown Bros. & Co., N. Y. City, Bristol, 88 coils.
Brown Bros. & Co., City of Alton, Rotterdam, 43 coils.

### CHINA CLAY

L. A. Salomon & Bros., Baltic, Liverpool, 320 casks china clay; 40 bags.
English China Clays Sales Corp., Boston City, Fowey, 301 tons, 3 cwt. china clay.
Hammil & Gillespie, Boston City, Fowey, 100 tons china clay.
Moore & Munger, Boston City, Fowey, 989 tons, 8 cwt. china clay.

### WOOD PULP

Castle & Overton, Inc., A. Ballin, Hamburg, 918 bls. wood pulp, 131 tons.
——, A. Ballin, Hamburg, 265 bls. wood pulp, 53 tons.
Johanson, Wales & Sparre, Inc., Gripsholm, Gothenburg, 1625 bls. sulphate.
Perkins Goodwin & Co., Gripsholm, Gothenburg, 91 bls. wood pulp.
Price & Pierce, Ltd., Gripsholm, Gothenburg, 250 bls. wood pulp.
Chemical Bank & Trust Co., Stavangerfjord, Oslo, 150 bls. sulphite.
International Accep. Bank, Fred. VIII, Oslo, 300 bls. sulphate, 60 tons.
E. M. Sergeant & Co., Larviksfjord, Oslo, 300 bls. wood pulp.
J. Andersen & Co., Larviksfjord, Oslo, 2660 bls. sulphite.

*(Continued on Page 106)*

C. K. WILLIAMS & CO. ANCHOR BRAND DRY COLORS AND FILLERS EASTON, PA. U.S.A.

Red
Brown
Yellow
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Ticonderoga. N. Y., U. S. A.
*MANUFACTURERS OF*
WARREN IMPROVED CALENDER DOCTORS
*With Flexible Blades, Universal Adjustment and Control* (PATENTED)
WARREN IMPROVED PATENT DOUBLE DRUM WINDERS
Patent BALL VALVE Hydrant
Stock Circulating Systems and
other Paper Mill Specialties
*SEND FOR OUR BULLETIN*

**AMIJEL**

A new Starch beater-size, requires no cooking. Permits use of lower steam pressure in drying cans. Produces finer grain in paper. Improves surface of the sheet. Make a practical test and note the improvement in your sheet.

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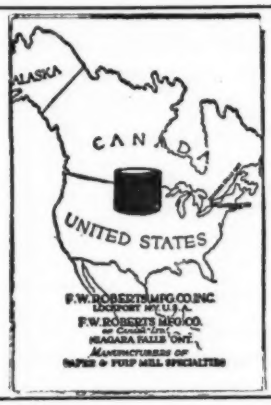
**CLINTON STARCHES**
*Special Grades for Beater and Top Sizing*
Manufactured by
CLINTON CORN SYRUP REFINING COMPANY
CLINTON, IOWA
QUALITY SERVICE

BURRS

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**GIANT**
RAGS — BURLAP
BAGGING — ROPE
JUTE BUTTS, MAGAZINES, CATALOGS
OLD PAPERS, THREAD WASTE AND
ALL GRADES OF RAGS
CUT QUICKLY AND EFFICIENTLY
WITH THE

TAYLOR, STILES & COMPANY GIANT RIEGELSVILLE, N.J. U.S.A.

This is the GIANT 2A CUTTER WITH A CAPACITY OF 3000 lbs. PER HOUR
GIANT RAG CUTTERS HAVE CAPACITIES OF FROM 1 to 5 tons per hour.

THE STANDARD OF THE WORLD FOR 59 YEARS
TAYLOR, STILES & COMPANY
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SOLE AGENTS FOR EUROPE
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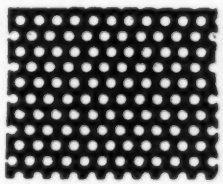
**Perforated Metal Screens**
**For Pulp and Paper Mills**



STEEL, COPPER, BRASS, BRONZE, MONEL METAL and other Alloys punched for Centrifugal and Rotary Screens, Pulp Washers. Drainer Bottoms, Filter Plates, etc.

".065" Round

CHARLES MUNDT & SONS
63-65 FAIRMONT AVE. JERSEY CITY, N. J.

# Imports of Paper and Paper Stock

*(Continued from page 104)*

J. Andersen & Co., Brazil Maru, Hamburg, 275 bls. sulphite, 55 tons.

WOOD PULP BOARDS

Lagerloef Trading Co., Hallaren, Kotka, 412 bls.; 122 rolls.

WOOD FLOUR

State Chemical Co., Rotterdam, Rotterdam, 500 bags.

——, Rotterdam, Rotterdam, 300 bags.

B. L. Soberski, Larviksfjord, Frederickstad, 1500 bags.

Corn Exchange Bank, Larviksfjord, Flekkefjord, 500 bags.

## PORTLAND, ME., IMPORTS

WEEK ENDING MAY 31, 1930

English China Clays Sales Corp., Boston City, Fowey, 1837 tons, 5 cwt. china clay.

Moore & Munger, Boston City, Fowey, 1123 tons, 7 cwt. china clay.

Lagerloef Trading Co., Hallaren, Helsingfors, 1060 bls. sulphite.

Lagerloef Trading Co., Hallaren, Wiborg, 6254 bls. sulphite.

Lagerloef Trading Co., Hallaren, Kotka, 5667 bls. sulphite; 499 bls. sulphate.

## PHILADELPHIA IMPORTS

WEEK ENDING MAY 31, 1930

J. A. Steer & Co., N. Y. City, Bristol, 56 coils old rope; 90 bls. waste paper.

Lagerloef Trading Co., Hallaren, Wiborg, 4438 bls. sulphite.

Lagerloef Trading Co., Hallaren, Kotka, 1793 bls. sulphate; 2493 bls. sulphite.

Guaranty Trust Co., Examiner, Leghorn, 57 bls. rags.

J. A. Steer & Co., Examiner, Leghorn, 96 bls. rags.

Brown Bros. & Co., London Citizen, London, 167 coils old rope.

Pan American Wallpaper & Paint Co., London Citizen, London, 1 ble. wall paper.

National Vulcanized Fibre Co., London Citizen, London, 103 bls. rags.

E. J. Keller Co., Inc., Arna, ——, 310 bls. rags.

E. J. Keller Co., Inc., Estrella, ——, 101 bls. rags.

E. J. Keller Co., Inc., Saco, ——, 430 bls. rags.

Bulkley Dunton & Co., Toronto, ——, 500 bls. wood pulp.

## BOSTON IMPORTS

WEEK ENDING MAY 31, 1930

Bulkley Dunton & Co., Wytheville, ——, 675 bls. woodpulp.

## BALTIMORE IMPORTS

WEEK ENDING MAY 31, 1930

Congoleum Nairn Co. Liberty, Dunkirk, 284 bls. rags.

Congoleum Nairn Co., Liberty, Havre, 879 bls. rags.

Congoleum Nairn Co., Examiner, Genoa, 310 bls. rags.

Congoleum Nairn Co., Examiner, Marseilles, 47 bls. rags.

Congoleum Nairn Co., Examiner, Leghorn, 357 bls. rags.

Congoleum Nairn Co., Examiner, Naples, 233 bls. rags.

Bulkley Dunton & Co., Binnendyk, ——, 900 bls. wood pulp.

## Cellulose Industries May Use Peanut Hulls

WASHINGTON, D. C., May 26, 1930.—Peanut hulls, now regarded as a farm waste, with a value of only about $2 a ton for fuel, may become commercially important as a source of cellulose to supplement cotton linters and wood pulp in America's rapidly developing cellulose industries, say D. F. J. Lynch and M. J. Goss, chemists of the Department of Agriculture's Bureau of Chemistry and Soils, who have been seeking to discover and develop profitable outlets for this farm waste of the Southern States.

Several attempts to dispose of the 70,000 tons of peanut hulls which collect annually at the shelling plants in the Southern States have as yet met with only small success. Hulls have been used experimentally as roughage in cattle feed but they have little feed value; small quantities are incorporated as a diluent in fertilizers; and attempts have been made to use the hulls in magnesia plastor, tiles, and fiber concrete, but the Bureau of Standards reports that the fiber concrete is weaker than the concrete prepared with hardwood chips.

It is only a matter of time, say the chemists, until the depletion of the forests and the attendant scarcity of wood pulp, together with the rapidly increasing demand for a cheap, high-grade cellulose, will make our present sources of cellulose inadequate. The search for a supplemental supply would naturally turn to our cheap farm waste products. Peanut hulls, because of their cheapness and their availability in large quantities at the shelling plants, appear to offer a promising source of cellulose for the future.

## Long Beach Div. Moves To Larger Quarters

SAN FRANCISCO, Cal., May 24, 1930.—The Zellerbach Paper Company, Division of the Crown Zellerbach Paper Corporation, announces the removal on April 30th, 1930, of its Long Beach Division from 905 Pico street to much larger and more convenient quarters, located at 1165 West Ocean Boulevard. Larger stocks, with many new items, have been added with a sincere desire better to serve its increasing number of friends in the Long Beach, Wilmington and San Pedro district. New telephone numbers are 617-10 and 684-276.

## Gummed Industries To Meet in Chicago

D. A. Crocker, secretary of the Gummed Industries Association, 18 East 41st street, New York, announces that the regular summer meeting of the association will be held at the Union League Club, Chicago, Thursday, June 12th, 1930.

## Fidalgo Mill Gets Water Supply

ANACORTES, Wash., May 31, 1930.—The Fidalgo division of the Puget Sound Pulp and Timber Company, here, will have its future water supply assured since on May 6 the voters of Anacortes approved a water revenue bond issue of $500,000. This will provide for water being brought from the Skagit river 18 miles away with a 300 million emergency supply for industries in the district. The Puget Sound Pulp and Timber Company has guaranteed purchase and use of water up to $28,616 annually.

Included in the proposed new water supply construction will be a filter unit with capacity of 5,000,000 gallons daily, and from this filter a new 20 inch industrial main will be laid to supply if desired 6,000,000 gallons daily to pulp and paper mills.

A shipment of 600 tons of pulp was shipped to Bordeaux, France, last month, this being the largest cargo from the Anacortes mill to go to this country. Shipments have also been made in the past few weeks to Oslo, Norway and Genoa, Italy. The Fidalgo company is making about 60 tons of strong bleach pulp a day but this will be increased with the new water supply.

## To Hold Safety Congress at Pittsburgh

The nineteenth annual Safety Congress will be held September, 29 to October, 3 inclusive at Pittsburgh, Pa. The headquarters will be at the Fort Pitt and William Penn hotels. The Paper and Pulp Section meetings will be held Tuesday afternoon, Wednesday afternoon and Thursday morning. The luncheon will be held at noon on Wednesday. All the Paper and Pulp Section meetings will be held in the Fort Pitt hotel.

## New Agents for Legion Bond and Ledger

BOSTON, Mass., June 2, 1930.—The Whiting Paper Company, Holyoke, Mass., announce that they have appointed Rutter & McNaught, Inc., as selling agents for Legion Bond and Legion Ledger. A large stock of every size, weight and color of both the bond and ledger will be carried in Boston.

## Awards for Government Paper

WASHINGTON, D. C., June 4, 1930.—The R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing Office with 2200 sheets of 17 x 22 pink gummed paper at $12.76 per thousand, bids for which were received on May 12.

## E. G. Drew Moves Pacific Coast Offices

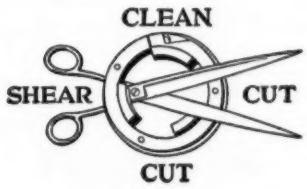
PORTLAND, Ore., May 31, 1930.—E. G. Drew, representing the J. O. Ross Engineering Corporation and John Waldron Corporation on the Pacific Coast, announces the removal of offices to 311 Lewis Building, Portland.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

*Successors to the Granger Foundry & Machine Co.*

**The Textile-Finishing Machinery Company**
**PROVIDENCE, R. I.**

**LANGSTON**




**For clean, square-edged, tightly wound rolls, Langston Slitters are unequalled. The famous Shear-Cut parts the paper sharply—*instead of crushing it.* Ask for catalog giving full details.**

**SAMUEL M. LANGSTON CO.**
Camden, N. J.

**SLITTERS**

*Mill Saves . . .*

$1,096.80 per year by

*treating concrete tanks*

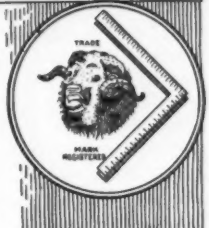
THE removal of slime in concrete beaters, save-all tanks, jordan chests is an expensive proposition. One mill recently reported a labor saving of $1,131.00 a year by the easy precaution of painting the bottom and sides of concrete tanks with Quartz Quality Silicate of Soda. It fills the pores of the concrete and reduces greatly slime accumulation. The cost of the silicate treatment is $34.20 per annum.

Details of the method of application will be cheerfully furnished.

PHILADELPHIA QUARTZ CO.
125 S. Third St., Philadelphia
CHICAGO OFFICE: 205 W. WACKER DRIVE

**3 FEATURES of our "TOP FELTS for BOARD MACHINES"**

A Trial Felt for Your Machines Will Prove These Facts.



**THE WATERBURY FELT CO., SKANEATELES FALLS, N.Y.**

## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 4, 1930.

Trading in the local paper market was rather light during the past week. Demand for the various standard grades of paper was mostly seasonal. Inquiries for future needs are said to be fairly numerous. Sales forces of the leading paper organizations are putting forth strenuous efforts to secure new orders. Prices are practically unchanged.

Consumption of news print is being maintained in satisfactory volume. Manufacturers are operating at approximately 76 per cent of total capacity in the United States and Canada and shipments are proceeding at 77 per cent of rating, according to information gathered by the News Print Service Bureau. No further developments have been reported in the price situation.

Demand for paper board is moderately active. Quotations on the various grades are easy. The fine paper market continues to exhibit a steady trend. Prices are holding to schedule. Tissues are going forward in seasonal volume. The coarse paper market is irregular, while the kraft paper situation remains involved. Shading on desirable orders is frequent.

### Mechanical Pulp

Steadiness prevails in the ground wood market, although demand for both imported and domestic mechanical pulp was affected by the holidays. Offerings are ample for current requirements. Contract shipments are proceeding in normal volume for the time of year. Prices are generally holding to previously quoted levels without difficulty.

### Chemical Pulp

The chemical pulp market was rather quiet during the past week. While new orders are scarce there are some inquiries around for future business. Prices are fairly steady, although kraft pulp continues weak. Imported No. 1 kraft pulp is now offered at from $1.75 to $2.15, on dock, Atlantic ports, while No. 2 kraft pulp is quoted at from $1.65 to $1.85.

### Old Rope and Bagging

Business in the old rope market was very dull. Prices are easier. Domestic manila rope is now selling at from $3.75 to $4.25, while imported manila rope is quoted at from $3.50 to $3.75. Demand for small mixed rope is light. The bagging market is in a sound position. Gunny bagging is particularly active. Roofing bagging is listless at present.

### Rags

The domestic rag market is practically unchanged. Cotton cuttings were in moderate request during the past week. Mixed khaki cuttings, however, were in excellent demand. Little interest was displayed in roofing rags. Mixed rags were also dull. Imported rags were moderately active. Prices on some of the grades were somewhat easier.

### Waste Paper

Board mill interest in the lower grades of paper stock is restricted. In most instances, prices are easier. No. 1 white news is offered at from 1.75 to 1.85; strictly overissue at from .50 to .55; strictly folded at from .40 to .45 and No. 1 mixed paper at from .20 to .25. The better grades of waste paper continue steady.

### Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Offerings of the various grades are about sufficient to take care of current requirements. Prices are generally holding to previously quoted levels and reports of concessions are infrequent.

---

## Start Toilet Paper Plant in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 2, 1930.—A new plant, said to be one of the finest and most sanitary of its kind in the country, has been added to Indianapolis. The new concern, a toilet paper plant, is located at 225 West South street and is operated jointly by the Standard Paper Company and the Capitol Paper Company.

The mill manufactures a number of grades of bathroom tissue, chief of which is the Sealskin brand, which is distributed by independent retailers in the Indianapolis territory. In addition to a large warehouse a considerable force of men and women is required in the operation of the plant, which produces about 20,000 rolls a day.

The plant is unusual in its sanitary features. It takes advantage of the sterilizing quality of sunlight by being entirely surrounded by windows. Walls and ceiling are enameled white and all employees wear white uniforms. Each employee is required to wash his hands in a special antiseptic sterilized solution before entering the workrooms.

---

## Cellophane Prices Reduced

The Du Pont Cellophane Company on Monday announced a series of three further substantial reductions in the price of regular cellophane, effective on May 26, August 1 and October 1.

These reductions are made possible by the increased production facilities available on these dates at new plants now under process of construction. They are based on anticipated adoption of cellophane on certain types of products on which its use was heretofore impossible at existing higher prices.

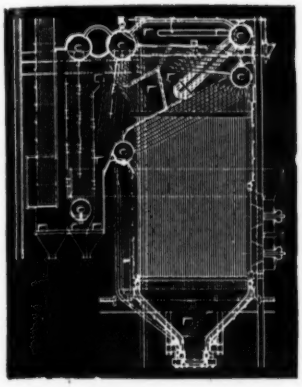
This makes eleven price reductions on cellophane since its domestic manufacture was started by the du Pont organization six years ago. The new figures reflecting these reductions are only 25 per cent of the original price.

On moistureproof cellophane, announcement was also made that increased production would be available in the near future and that prices would be reduced as rapidly as conditions of manufacture permitted.

---

## Finnish Pulp and Paper Markets Unchanged

There has been little change over the past month in the Finnish pulp and paper markets. In the ground wood market sales for 1931 delivery are being made, about two-thirds of next year's output having been disposed of. Sales of news print for 1931 delivery have not started yet and as practically all of this year's production has been sold, there is little interest shown in this market. The demand for thin printings, wrappings, and fine paper continues light. Since the first of the year sales of wood pulp boards have been slow, buyers showing a reluctance to cover their requirements in advance.



## BADENHAUSEN STEAM GENERATING UNITS

installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

**Result:—Enormous savings in cost of pulp and paper produced.**

BADENHAUSEN CORPORATION
General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.

# LINDSAY SPIRAL WEAVE FOURDRINIER WIRES

**prevent grooving of Seams on machines not equipped with oscillating Suction Boxes. This lengthens the life of wires and increases their production.**

THE LINDSAY WIRE WEAVING CO.
**14025 Aspinwall Ave.**
**CLEVELAND, OHIO**

**1864** **1930**

# "EXCELSIOR" FELTS

**for every grade of**

## PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

**Seamless felts for fast running.**
**Satin Style felts for finish.**
**Special felts to meet every condition.**
**Send us your felt problems.**

KNOX WOOLEN COMPANY
**CAMDEN, MAINE**

**SOLD BY**

**BULKLEY, DUNTON & COMPANY**

**75-77 Duane St., N. Y., and direct**

# Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

## UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS
6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

**Old Plates Reclosed and Re-cut to Accurate Gauge**
**Rolled Phosphor Bronze and Copper Plates for Rotary Screens**

*Sole Manufacturers of the Union Witham Screen Plate Vat and Fastener*

# Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 4, 1930.

BLANC FIXE.—Trading in the blanc fixe market was moderately active during the past week. The contract movement was well up to average. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Production of bleaching powder is being maintained in sufficient volume to take care of current requirements. Shipments against contract are proceeding in a normal manner. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—Demand for casein was light and prices declined slightly. Domestic standard ground is quoted at 13½ cents and finely ground at 15 cents per pound. Argentine standard ground is selling at 14 cents per pound and finely ground at 15 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Supplies are moving into consumption in good volume. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Demand is fairly persistent. Prices are holding to schedule. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Most of the business transacted in the chlorine market during the past week was along routine lines. Shipments against contract are moving to the paper mills in fair volume. Chlorine is still quoted at $2.50 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market developed further weakness. Prices are slightly easier. The grades of gum rosin used in the paper mills are now quoted at from $7.00 to $7.30 per 280 pounds, in barrels, at yard. Wood rosin is selling at from $6.25 to $6.80 per 280 pounds, in barrels, on dock.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Contract shipments are going forward at a steady pace. Offerings are not excessive. Salt cake is still quoted at from $22 to $25 per ton, while chrome salt cake is selling at from $20 to $21 per ton, in bulk, at works.

SODA ASH.—Supplies of soda ash are moving into consumption in good volume for the time of year. The prevailing demand is moderately active. Prices are holding to formerly quoted levels. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½; and in barrels, $1.55.

STARCH.—The starch market is in a sound position for the season. Demand from the paper mills is satisfactory and offerings are about sufficient to meet current needs. Special paper making starch is still offered at $3.72 per 100 pounds, in bags, and at $3.99 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Consumption of sulphate of alumina is being maintained in good volume. The contract movement is well up to average. Commercial grades are quoted at from $1.40 to $1.55, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market displayed a steady trend. Sulphur is still quoted at $18 per ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over the same period; on spot and nearby car loads the quotation is $21 per ton.

TALC.—Contract shipments of talc are going forward to the paper mills in normal volume for the season. Prices remain steady and unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines, while imported talc is selling at from $18 to $20 per ton, in bags, ship side.

# Market Quotations

## Paper

(F. o. b. Mill)

| | | |
|---|---|---|
| Ledgers | 11.00 | @38.00 |
| Bonds | 9.00 | @53.25 |
| Writings— | | |
| Extra Superfine | 14.00 | @32.00 |
| Superfine | 14.00 | @32.00 |
| Tub sized | 10.00 | @15.00 |
| Engine sized | 8.00 | @11.00 |
| Book, Cased— | | |
| S. & S. C. | 6.00 | @ 7.50 |
| M. F. | 5.75 | @ 7.00 |
| Coated and Enamel | 7.50 | @12.00 |
| Lithograph | 7.50 | @12.00 |
| Tissues—Per Ream— | | |
| White No. 1 | .75 | @ 1.00 |
| Anti-Tarnish | 1.35 | @ 1.90 |
| Colored | 1.00 | @ 2.00 |
| White No. 2 | .75 | @ .80 |
| Kraft | 1.00 | @ 1.10 |
| Manila | .75 | @ .80 |
| Kraft— | | |
| No. 1 Domestic | 5.75 | @ 6.25 |
| No. 2 Domestic | 3.50 | @ 5.00 |
| Southern | 3.00 | @ 4.50 |
| Imported | 6.50 | @ 7.00 |
| Manila— | | |
| No. 1 Jute | 9.00 | @ 9.25 |
| No. 2 Jute | 7.75 | @ 8.50 |
| No. 1 Wood | 4.75 | @ 5.25 |
| No. 2 Wood | 4.00 | @ 4.50 |
| Butchers | 3.75 | @ 4.25 |
| Fibre Papers— | | |
| No. 1 Fibre | 5.00 | @ 5.50 |
| No. 2 Fibre | 4.75 | @ 5.25 |
| Common Bogus | 2.75 | @ 3.00 |
| Screenings | 3.00 | @ 3.25 |
| Card Middles | 4.00 | @ 5.00 |
| Glassine— | | |
| Bleached, basis 25 lbs. | 13.00 | @16.00 |
| Bleached, basis 20 lbs. | 15.00 | @16.00 |

(Delivered New York)

| | | |
|---|---|---|
| News, per ton— | | |
| Rolls, contract | 62.00 | @ — |
| Rolls, spot | 62.00 | @ — |
| Sheets | 67.00 | @ — |
| Side Runs | 47.00 | @52.00 |
| Boards—per ton— | | |
| News | 37.50 | @ — |
| Straw | 50.00 | @ — |
| Chip | 35.00 | @ — |
| Binders' Boards | 65.00 | @70.00 |
| Wood Pulp | 90.00 | @95.00 |
| 65 Test Jute Liner | 45.00 | @47.50 |
| 85 Test Jute Liner | 50.00 | @55.00 |
| Sgl. Mla. Ll. Chip. | 47.50 | @50.00 |

## Mechanical Pulp

(On Dock)

| | | |
|---|---|---|
| No. 1 Imported— | | |
| Moist | 28.00 | @30.00 |
| Dry | 30.00 | @32.00 |

(F. o. b. Mill)

| | | |
|---|---|---|
| No. 1 Domestic | 26.00 | @30.00 |

## Chemical Pulp

(On Dock, Atlantic Ports)

| | | |
|---|---|---|
| Sulphite (Imported)— | | |
| Bleached | 3.25 | @ 4.25 |
| Easy Bleaching | 2.75 | @ 2.90 |
| No. 1 strong unbleached | 2.50 | @ 2.65 |
| Mitscherlich unbleached | 2.50 | @ 2.85 |
| No. 2 strong unbleached | 2.35 | @ 2.50 |
| No. 1 Kraft | 1.75 | @ 2.15 |
| No. 2 Kraft | 1.65 | @ 1.85 |
| Sulphate— | | |
| Bleached | 3.40 | @ 3.85 |

(F. o. b. Pulp Mill)

| | | |
|---|---|---|
| Sulphite (Domestic)— | | |
| Bleached | 3.00 | @ 4.75 |
| Easy Bleaching Sulphite | 2.55 | @ 2.85 |
| News Sulphite | 2.35 | @ 2.60 |
| Mitscherlich | 3.00 | @ 3.25 |
| Kraft (Domestic) | 2.10 | @ 3.30 |
| Soda Bleached | 2.90 | @ 3.20 |

## Domestic Rags

New Rags

(Prices to Mill f. o. b N. Y.)

| | | |
|---|---|---|
| Shirt Cuttings— | | |
| New White, No. 1 | 9.25 | @ 9.75 |
| New White, No. 2 | 7.00 | @ 7.50 |
| Silesias No. 1 | 7.50 | @ 8.00 |
| New Unbleached | 10.50 | @11.00 |
| New Blue Prints | 5.25 | @ 5.50 |
| New Soft Blacks | 5.25 | @ 5.75 |
| Blue Overall | 7.25 | @ 7.75 |
| Washables | 4.75 | @ 5.25 |
| Fancy | 5.50 | @ 6.00 |
| Mixed Khaki Cuttings | 4.75 | @ 5.25 |
| Pink Corset Cuttings | 8.00 | @ 8.50 |
| O D. Khaki Cuttings | 5.15 | @ 5.75 |
| Men's Corduroy | 3.75 | @ 4.25 |
| New Mixed Blacks | 3.50 | @ 3.75 |

Old Rags

| | | |
|---|---|---|
| White, No. 1— | | |
| Repacked | 5.50 | @ 6.00 |
| Miscellaneous | 4.50 | @ 5.00 |
| White, No. 2— | | |
| Repacked | 3.00 | @ 3.50 |
| Miscellaneous | 2.50 | @ 2.75 |
| St. Soiled, White | 2.00 | @ 2.15 |
| Thirds and Blues— | | |
| Repacked | 2.25 | @ 2.50 |
| Miscellaneous | 1.75 | @ 2.00 |
| Black Stockings | 3.25 | @ 3.75 |
| Roofing Rags— | | |
| Cloth Strippings | 1.70 | @ 1.80 |
| No. 1 | 1.70 | @ 1.80 |
| No. 2 | 1.50 | @ 1.60 |
| No. 3 | 1.30 | @ 1.40 |
| No. 4 | 1.25 | @ 1.35 |
| No. 5A | .90 | @ 1.05 |

## Foreign Rags

New Rags

| | | |
|---|---|---|
| New Dark Cuttings | 2.50 | @ 3.00 |
| New Mixed Cuttings | 2.75 | @ 3.25 |
| New Light Silesias | 7.00 | @ 7.50 |
| Light Flannelettes | 7.50 | @ 8.00 |
| Unbleached Cuttings | 10.00 | @11.00 |
| New White Cuttings | 10.00 | @10.50 |
| New Light Oxfords | 7.00 | @ 7.50 |
| New Light Prints | 5.50 | @ 6.50 |

Old Rags

| | | |
|---|---|---|
| No. 1 White Linens | 7.25 | @ 8.00 |
| No. 2 White Linens | 5.75 | @ 6.75 |
| No. 3 White Linens | 4.75 | @ 5.25 |
| No. 4 White Linens | 3.00 | @ 3.50 |
| No. 1 White Cotton | 5.50 | @ 6.50 |
| No. 2 White Cotton | 2.75 | @ 3.75 |
| No. 3 White Cotton | 3.00 | @ 4.00 |
| No. 4 White Cotton | 1.95 | @ 2.15 |
| Extra Light Prints | 2.75 | @ 3.00 |
| Ord. Light Prints | 2.25 | @ 2.50 |
| Med. Light Prints | 1.95 | @ 2.10 |
| Dutch Blue Cottons | 2.15 | @ 2.30 |
| French Blue Linens | 2.65 | @ 2.75 |
| German Blue Linens | 2.30 | @ 2.50 |
| German Blue Cottons | 2.00 | @ 2.10 |
| Checks and Blues | 1.85 | @ 2.00 |
| Lindsay Garments | 1.75 | @ 1.80 |
| Dark Cottons | 1.35 | @ 1.40 |
| Old Shopperies | 1.25 | @ 1.30 |
| New Shopperies | 1.20 | @ 1.25 |
| French Blues | 2.00 | @ 2.10 |

## Old Rope and Bagging

(Prices to Mill f. o.b. N. Y.)

| | | |
|---|---|---|
| Gunny No. 1— | | |
| Foreign | 1.65 | @ 1.75 |
| Domestic | 1.65 | @ 1.75 |
| Wool Tares, light | 1.60 | @ 1.65 |
| Wool Tares, Heavy | 1.60 | @ 1.70 |
| Bright Bagging | 1.60 | @ 1.70 |
| Small Mixed Rope | 1.25 | @ 1.40 |
| Manila Rope— | | |
| Foreign | 3.50 | @ 3.75 |
| Domestic | 3.75 | @ 4.25 |
| New Burlap Cut | 2.50 | @ 2.75 |
| Hessian Jute Threads— | | |
| Foreign | 3.50 | @ 4.00 |
| Domestic | 3.25 | @ 3.50 |

## Old Waste Papers

(F. o. b. New York)

| | | |
|---|---|---|
| Shavings— | | |
| Hard, white, No. 1 | 3.00 | @ 3.25 |
| Hard, white, No. 2 | 2.40 | @ 2.55 |
| Soft, white, No. 1 | 2.65 | @ 2.75 |
| White envelope cuttings | 2.90 | @ 3.10 |
| Flat Stock— | | |
| Stitchless | 1.40 | @ 1.50 |
| Overissue Mag. | 1.40 | @ 1.50 |
| Solid Flat Book | 1.30 | @ 1.40 |
| Crumpled No. 1 | 1.00 | @ 1.10 |
| Solid Book Ledger | 2.00 | @ 2.10 |
| Ledger Stock | 1.30 | @ 1.40 |
| New B. B. Chips | .35 | @ .45 |
| Manilas— | | |
| New Env. Cut. | 2.40 | @ 2.60 |
| New Cuttings | 1.50 | @ 1.75 |
| Extra No. 1 old | 1.25 | @ 1.35 |
| Print | .60 | @ .65 |
| Bogus Wrapper | .60 | @ .65 |
| Container | .40 | @ .50 |
| Old Kraft Machine— | | |
| Compressed bales | 1.50 | @ 1.60 |
| News— | | |
| No. 1 White News | 1.75 | @ 1.85 |
| Strictly Overissue | .50 | @ .55 |
| Strictly Folded | .40 | @ .45 |
| No. 1 Mixed Paper | .20 | @ .25 |
| Common Paper | .15 | @ .20 |

# LOCKWOOD'S DIRECTORY

## OF THE PAPER AND ALLIED TRADES

*1930 EDITION*

**CORRECTED UP-TO-DATE**

**CONTENTS**

**Entire contents classified under separate headings for the United States and Canada, alphabetically and geographically arranged by states.**

- City Addresses of Mills and Mill Supply Houses
- Classified List of Paper Mill Products
- Classified List of Pulp Mill Products
- Coated Paper Manufacturers
- Envelope Manufacturers
- Glazed and Coated Paper Manufacturers
- Idle Mills
- Mill Officials
- Pad Manufacturers
- Paper Merchants
- Paper Stock and Rag Dealers
- Paper Bag Manufacturers
- Paper Box Manufacturers
- Paper, Wood Pulp and Chemical Fiber Mills of the United States, Canada, Cuba, Mexico and South America
- Paper Specialties Manufacturers
- Papeterie Manufacturers
- Prepared Roofing Manufacturers
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- Stationers in United States, Porto Rico, Canada, Cuba, Hawaiian Islands and the Philippine Islands
- Statistical Table of Mills
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- Tag Manufacturers
- Toilet Paper Manufacturers
- Trade Associations
- Twine Manufacturers
- Vegetable Parchment Manufacturers
- Wall Paper Printers
- Water Marks and Brands
- Waxed Paper Manufacturers

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**AMERICAN MADE FOR THE AMERICAN TRADE**

**H. T. BRAND COATING CLAY**
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**High Grade Filler Clay**

**Edgar Clays are the result of almost half a century of experience in Washing Clay. Technical Service available for both coating and loading without charge.**

**EDGAR BROS. CO.**
**50 Church St. New York**

**500 Tons Daily**

*We will be glad to send you samples—*

### Twines
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| **Cotton—** | | | |
| No. 1 | .39 | @ | .40 |
| No. 2 | .37 | @ | .38 |
| No. 3 | .36 | @ | .37 |
| B. C., 18 basis | .38 | @ | .40 |
| A. B. Italian, 18 basis | .48 | @ | .53 |
| **Finished Jute—** | | | |
| Dark 18 basis | .24 | @ | .25 |
| Light 18 basis | .27 | @ | .28 |
| **Jute Wrappings, 3-6 Ply—** | | | |
| No. 1 | .19 | @ | .21 |
| No. 2 | .18 | @ | .20 |
| **Tube Rope—** | | | |
| 4-ply and larger | .16 | @ | .17 |
| **Fine Tube Yarn—** | | | |
| 5-ply and larger | .21 | @ | .25 |
| 4-ply | .25 | @ | .29 |
| 3-ply | .28 | @ | .32 |
| **Unfinished India—** | | | |
| Basis | .13 | @ | .14 |
| **Paper Makers Twine** | | | |
| Balls | .11 | @ | .12 |
| **Box Twine, 2-3 ply** | .15 | @ | .17 |
| Jute Rope | .17 | @ | .19 |
| **Amer. Hemp, 6** | .29 | @ | .31 |
| **Sisal Hay Rope—** | | | |
| No. 1 Basis | .16 | @ | .18 |
| No. 2 Basis | .14 | @ | .16 |
| **Sisal Lath Yarn—** | | | |
| No. 1 | .14 | @ | .16 |
| No. 2 | .12 | @ | .14 |
| **Manila Rope** | .22 | @ | .24 |

## CHICAGO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| **Rag Bond** | .30 | @ | .53¼ |
| **Water Marked Sulphite Bond** | .09 | @ | .12 |
| **Sulphite Bond** | .06¾ | @ | .11 |
| **Superfine writing** | .18 | @ | .24 |
| **No. 1 fine writing** | .14 | @ | .18 |
| **No. 2 fine writing** | .12 | @ | .14 |
| **No. 3 fine writing** | .08½ | @ | .12 |
| **No. 1 M. F. Book** | .06½ | @ | .07¼ |
| **No. 2 M. F. Book** | .05¼ | @ | .06¼ |
| **No. 1 S.&S.C. Book** | .06¾ | @ | .07¾ |
| **No. 2 S.&S.C. Book** | .05¾ | @ | .06½ |
| **Coated Book** | .07½ | @ | .12 |
| **Coated Label** | .07½ | @ | .10 |
| **No. 1 Manila** | .04¼ | @ | .05¾ |
| **No. 1 Fibre** | .04¾ | @ | .05¾ |
| **No. 2 Manila** | .04¼ | @ | .04¾ |
| **Butcher's Manila** | .04 | @ | .04½ |
| **No. 1 Kraft** | .06¼ | @ | .06½ |
| **Southern Kraft** | 4.25 | @ | 4.50 |
| **No. 2 Kraft** | .04 | @ | .04¼ |
| **Wood Tag Boards** | .04¼ | @ | .06¾ |
| **Sulphite Sreenings** | .03 | @ | .03¼ |
| **Manila Tissue—** | | | |
| 24x36 Sheet | .07 | @ | .07¼ |
| **White Tissue—** | | | |
| 20x30 Sheet | .07¼ | @ | .07½ |
| (Delivered Central Territory) | | | |
| **News, per ton—** | | | |
| Rolls, contract | 62.00 | @ | — |
| Sheets | 67.00 | @ | — |
| **Boards, per ton—** | | | |
| Plain Chip | 37.50 | @ | 42.50 |
| Solid News | 47.50 | @ | — |
| Solid News | 40.00 | @ | 45.00 |
| Manila Lined Chip | 50.00 | @ | 55.00 |
| **Container Lined—** | | | |
| 85 Test | 65.00 | @ | 70.00 |
| 100 Test | 70.00 | @ | — |

### Old Papers
(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| **Shavings—** | | | |
| No. 1 Hard White | 2.35 | @ | 2.40 |
| White Env. Cut- | | | |
| **No. 1 Soft Shavings** | 2.10 | @ | 2.15 |
| **No. 1 Mixed** | .60 | @ | .70 |
| **No. 2 Mixed** | .50 | @ | .60 |
| **Ledger & Writings** | 1.25 | @ | 1.35 |
| **Solid Books** | 1.05 | @ | 1.10 |
| **Blanks** | 1.60 | @ | 1.65 |
| **Krafts** | 1.65 | @ | 1.75 |
| **New Kraft Cuts** | 2.15 | @ | 2.25 |
| **Manila Envelope Cuttings** | 1.75 | @ | 1.80 |
| **Ex. No. 1 Manila** | 1.30 | @ | 1.45 |
| **Print Manila** | .60 | @ | .70 |
| **Folded News (over-issue** | .50 | @ | .60 |
| **Old Newspapers—** | | | |
| No. 1 | .60 | @ | .65 |
| No. 2 | .50 | @ | .55 |
| **Mixed Papers—** | | | |
| No. 1 | .45 | @ | .50 |
| **Roofing Stocks—** | | | |
| (F. o. b. Chicago, net cash) | | | |
| No. 1 | 30.00 | @ | — |
| No. 2 | 28.00 | @ | — |

## PHILADELPHIA

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| **Bonds** | .05 | @ | .40 |
| **Ledgers** | .08 | @ | .40 |
| **Writings—** | | | |
| Superfine | .12½ | @ | .18 |
| Extra fine | .18 | @ | .22 |
| Fine | .17 | @ | .26 |
| Fine, No. 2 | .15 | @ | .25 |
| Fine, No. 3 | .09 | @ | .20 |
| **Book, M. F.** | .05 | @ | .07 |
| **Book, S. S. & C.** | .05 | @ | .07½ |
| **Book, Coated** | .09 | @ | .16 |
| **Coated Lithograph** | .07 | @ | .11 |
| **Label** | .07 | @ | .11 |
| **No. 1 Jute Manila** | .07 | @ | .09 |
| **Manila Sul., No. 1** | .04 | @ | .05½ |
| **Manila No. 2** | .03 | @ | .04 |
| **No. 2 Kraft** | .03½ | @ | .04 |
| **No. 1 Kraft** | .05½ | @ | .06½ |
| **Common Bogus** | .03½ | @ | .04 |
| (Delivered Philadelphia) | | | |
| **News Print Rolls** | 62.00 | @ | — |
| **Straw Board** | 52.50 | @ | 70.00 |
| **News Board** | 37.50 | @ | 38.50 |
| **Chip Board** | 32.50 | @ | 35.00 |
| **Wood Pulp Board** | 85.00 | @ | 95.00 |
| **Binder Boards—** | | | |
| No. 1, per ton | 75.00 | | |
| No. 2, per ton | 70.00 | | |
| Carload lots | 68.00 | @ | 70.00 |
| **Tarred Felts—** | | | |
| Regular | 55.50 | @ | 57.00 |
| Slaters (per roll) | .84 | @ | .94 |
| **Best Tarred, 1-ply** (per roll) | 1.95 | @ | 2.10 |
| **Best Tarred, 2-ply** (per roll) | 1.50 | @ | 1.60 |
| **Best Tarred, 3-ply** | 2.00 | @ | 2.25 |

### Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| **Shirt Cuttings—** | | | |
| New White, No. 1 | .10½ | @ | .11 |
| New White, No. 2 | .07 | @ | .07½ |
| Light Silesias | .07 | @ | .07½ |
| Silesias, No. 1 | .07 | @ | .09 |
| Black Silesia, soft | .05 | @ | .05½ |
| New Unbleached | .10½ | @ | .11 |
| Washable, No. 1 | .04½ | @ | .05 |
| **Blue Overall** | .07½ | @ | .08 |
| **Cottons—According to grades—** | | | |
| Washable, No. 2 | .03 | @ | — |
| New Blue | .03 | @ | .03½ |
| Fancy | .05½ | @ | .06 |
| New Black Soft | .05 | @ | .05¾ |
| New Light Seconds | .02½ | @ | .03 |
| New Dark Seconds | 1.85 | @ | 2.00 |
| **Khaki Cuttings—** | | | |
| No. 1 O. D. | .05½ | @ | .05¾ |
| No. 2 Mixed | .04½ | @ | .04¾ |
| **Corduroy** | .03 | @ | .03½ |
| New Canvas | .08½ | @ | .09 |
| New Black Mixed | .03¾ | @ | .04½ |

### Bagging
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| **Gunny, No. 1—** | | | |
| Foreign | 1.50 | @ | 1.60 |
| Domestic | 1.75 | @ | — |
| Manila Rope | 3.50 | @ | 4.00 |
| **Sisal Rope** | 1.50 | @ | — |
| **Mixed Rope** | 1.10 | @ | 1.25 |
| **Scrap Burlaps—** | | | |
| No. 1 | 1.50 | @ | 1.60 |
| No. 2 | 1.10 | @ | 1.20 |
| **Wool Tares, heavy** | 3.00 | @ | — |
| Mixed Strings | 1.15 | @ | 1.25 |
| **No. 1, New Light** Burlap | 2.50 | @ | 2.75 |
| **New Burlap Cuttings** | 2.00 | @ | 2.25 |

### Old Papers
(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| **Shavings—** | | | |
| No. 1 Hard White | 2.65 | @ | 2.75 |
| No. 2 Hard White | 2.30 | @ | 2.50 |
| No. 1 Soft White | 2.25 | @ | 2.50 |
| No. 2 Soft White | 1.40 | @ | 1.60 |
| No. 1 Mixed | 1.20 | @ | 1.25 |
| No. 2 Mixed | .75 | @ | .80 |
| **Solid Ledger Stock** | 1.55 | @ | 1.65 |
| **Writing Paper** | 1.15 | @ | 1.25 |
| **No. 1 Books, heavy** | 1.15 | @ | 1.20 |
| **No. 2 Books, light** | .90 | @ | 1.00 |
| **No. 1 New Manila** | 2.25 | @ | 2.30 |
| **No. 1 Old Manila** | 1.50 | @ | 1.60 |
| **Print Manila** | .75 | @ | .80 |
| **Container Manila** | .50 | @ | .60 |
| **Old Kraft** | 1.35 | @ | 1.40 |
| **Common Paper** | .30 | @ | .40 |
| **No. 1 Mixed Paper** | .25 | @ | .30 |
| **Straw Board, Chip** | .35 | @ | .40 |
| **Binders Board, Chip** | .35 | @ | .45 |
| **Overissue News** | .45 | @ | .50 |
| **Old Newspaper** | .25 | @ | .30 |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| **White No. 1—** | | | |
| Repacked | 4.25 | @ | 4.50 |
| Miscellaneous | 3.50 | @ | 3.75 |
| M. G. | 7.00 | @ | — |
| **Thirds and Blues—** | | | |
| Repacked | 2.00 | @ | 2.25 |
| Miscellaneous | 1.60 | @ | 1.80 |
| **Black Stockings (Export)** | 3.90 | @ | 4.25 |
| **Roofing Stock—** | | | |
| Foreign No. 1 | 1.65 | @ | 1.75 |
| Repacked | .01½ | @ | .01½ |

## BOSTON

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| **Ledgers—** | | | |
| Sulphite | .07½ | @ | .12½ |
| Rag content | .15 | @ | .30 |
| All rag | .38 | @ | .52½ |
| **Bonds—** | | | |
| Sulphite | .06½ | @ | .11½ |
| Rag content | .15 | @ | .30 |
| All rag | .36½ | @ | .65 |
| **Writings** | .06½ | @ | .20 |
| Superfines | .11 | @ | .31 |
| **Book, Super** | .06 | @ | .09 |
| **Book, M. F.** | .05¼ | @ | .08½ |
| **Book, Coated** | .08½ | @ | .18 |
| **Coated Litho** | .09 | @ | .12 |
| **Label** | .09½ | @ | .15 |
| **Jute Manila No. 1** | .11 | @ | .13 |
| **Manila, Sul. No. 1** | .04¼ | @ | .06½ |
| **Manila, Sul. No. 2** | .03¾ | @ | .04½ |
| **No. 1 Kraft** | .04½ | @ | .05¾ |
| **No. 2 Kraft** | .03½ | @ | .04½ |
| **Common Bogus** | .02 | @ | .02¾ |
| Delivered New England points | | | |
| **News Print Rolls** | 61.50 | @ | — |
| **Straw Boards, rolls** | .009 | | 52.50 |
| **Straw Board in** Sheets, basis 35s to 70s | 54.50 | @ | 55.00 |
| **Filled News Board** | 37.50 | @ | 40.00 |
| **Chip Board** | 35.00 | @ | 37.50 |
| **Single Manila Lined** Chip | 47.50 | @ | 52.50 |
| **Single White, Patent** Coated Newsboard Bender | 65.00 | @ | 80.00 |
| **Wood Pulp Board** | 75.00 | @ | 80.00 |
| **Binder Boards** | 70.00 | @ | 75.00 |
| (F. o. b. Mill) | | | |
| **Tarred Felts—** | | | |
| Regular, carload lots | 65.00 | @ | — |

### Old Papers
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| **Shavings—** | | | |
| No. 1 Hard White | 3.25 | @ | 3.75 |
| No. 2 Hard White | 2.60 | @ | 2.90 |
| No. 1 Soft White | 2.50 | @ | 2.60 |
| No. 1 Mixed | 1.10 | @ | 1.15 |
| No. 2 Mixed | .85 | @ | .90 |
| **Solid Ledger Stock** | — | @ | 2.25 |
| **No. 1 Books, Heavy** | 1.30 | @ | — |
| **No. 1 Books, Light** | 1.05 | @ | — |
| **Manila Env. Cuttings** | 2.00 | @ | 2.25 |
| **No. 1 Old Manila** | .90 | @ | 1.00 |
| **White Blank News** | 1.60 | @ | 1.70 |
| **Old Kraft** | 1.40 | @ | 1.50 |
| **Print Manila** | .75 | @ | .80 |
| **No. 1 Mixed Paper** | .20 | @ | .22½ |
| **Overissue News** | .40 | @ | .50 |
| **Old Newspapers** | .35 | @ | .40 |
| **Box Board, Chip** | .45 | @ | .50 |
| **Corrugated Boxes** | — | @ | .40 |

### Bagging
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| **Gunny No. 1—** | | | |
| Foreign | — | @ | 1.75 |
| Domestic | 1.65 | @ | — |
| **Manila Rope—** | | | |
| Foreign | 3.25 | @ | 3.50 |
| Domestic | 3.75 | @ | 4.00 |
| Transmission Rope | 2.40 | @ | 2.50 |
| **Mixed Strings** | .90 | @ | — |
| **Jute Wool Strings** | .90 | @ | 1.00 |
| **Jute Carpet Threads** | 1.05 | @ | 1.15 |
| **Scrap Burlaps** | 1.40 | @ | 1.50 |
| **Scrap Sisal** | 1.65 | @ | 1.75 |
| **Scrap Sisal for shredding** | 1.75 | @ | 2.00 |
| **Wool Tares, heavy** | 1.60 | @ | — |
| **New Burlap Cutting** | 1.75 | @ | 2.00 |
| **Australian Wool** Pouches | 2.50 | @ | 3.00 |

### Domestic Rags (New)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| **Shirt Cuttings—** | | | |
| New White No. 1 | .08 | @ | .08½ |
| Silesias No. 1 | .06 | @ | .06¾ |
| New Unbleached | — | @ | .09¼ |
| Fancy | .04 | @ | .04½ |
| Washable | .04 | @ | .04½ |
| **Cottons—According to grades** | | | |
| Blue Overalls | .06¼ | @ | .06¾ |
| **New Black, soft** | .04 | @ | .04½ |
| **Khaki Cuttings** | .04 | @ | .04¾ |
| **O. D. Khaki** | .05 | @ | — |
| **Corduroy** | .03 | @ | .03¼ |
| **New Canvas** | .08 | @ | .08½ |

### Domestic Rags (Old)
(F. o. b. Boston)

| | | | |
|---|---|---|---|
| **Canvas** | .04½ | @ | — |
| **White No. 1—** | | | |
| Repacked | 4.75 | @ | 5.25 |
| Miscellaneous | 5.00 | @ | — |
| **White No. 2—** | | | |
| Repacked | .04½ | @ | .05 |
| Miscellaneous | .03½ | @ | .04 |
| **Twos and Blues** | 2.75 | @ | 3.00 |
| **Thirds and Blues—** | | | |
| Repacked | 2.25 | @ | 2.50 |
| Miscellaneous | 1.75 | @ | 1.90 |
| **Black Stockings** | — | @ | 4.00 |
| **Roofing Stock—** | | | |
| No. 1 | 1.56 | @ | 1.65 |
| No. 2 | 1.00 | @ | 1.10 |
| No. 3 | .90 | @ | 1.00 |
| No. 4 | .95 | @ | 1.05 |

### Foreign Rags
(F. o. b. Boston

| | | | |
|---|---|---|---|
| **Dark Cottons** | 1.20 | @ | 1.30 |
| **New No. 1 Shirt Cuttings** | 8.50 | @ | 9.00 |
| **Dutch Blues** | 2.00 | @ | 2.12½ |
| **Lace Curtains** | 4.50 | @ | 4.75 |
| **New Checks & Blues** | 4.25 | @ | 4.60 |
| **Old Fustians** | 1.90 | @ | 2.00 |
| **Old Linsey Garments** | 1.50 | @ | 1.60 |

## TORONTO

### Paper
(F. o. b. Mill)

| | | | |
|---|---|---|---|
| **Bond—** | | | |
| No. 1 Sulphite | .12½ | @ | — |
| No. 2 Sulphite | .10¾ | @ | — |
| No. 1 Colored | .13½ | @ | — |
| No. 2 Colored | .11¾ | @ | — |
| **Ledgers (sulphite)** | — | @ | — |
| **Ledgers, No. 1** | .36 | @ | — |
| **Ledgers, No. 2** | .27 | @ | — |
| **Writing** | .09½ | @ | .10 |
| **Book—** | | | |
| No. 1 M. F. (carloads) | 7.50 | @ | — |
| No. 2 M. F. (carloads) | 7.25 | @ | — |
| No. 3 M. F. (carloads) | 7.00 | @ | — |
| No. 1 S. C. (carloads) | 8.00 | @ | — |
| No. 2 S. C. (carloads) | 7.75 | @ | — |
| No. 3 S. C. (carloads) | 7.50 | @ | — |
| No. 1 Coated and Litho | 13.25 | @ | — |
| No. 2 Coated and Litho | 12.25 | @ | — |
| No. 3 Coated and Litho | 10.00 | @ | 11.50 |
| Coated tinted | 14.50 | @ | — |
| **Wrapping—** | | | |
| Rag Brown | 4.95 | @ | — |
| White Wrap | 5.25 | @ | — |
| "B" Manila | 5.00 | @ | — |
| No. 1 Manila | 5.40 | @ | — |
| Fiber | 5.40 | @ | — |
| Kraft, M. F. | 5.90 | @ | — |
| **White, No. 2** | 2.00 | @ | 2.25 |
| **No. 2** | 1.20 | @ | 1.25 |
| **No. 3 (Roofing)** | 1.10 | @ | 1.20 |
| **No. 4** | 1.00 | @ | 1.15 |
| **No. 5A** | .75 | @ | .85 |
| B | .65 | @ | .75 |
| C | .65 | @ | .75 |

(Delivered Toronto)

| | | | |
|---|---|---|---|
| **News, per ton—** | | | |
| Rolls (contract) | 61.50 | @ | 62.00 |
| Sheets | 67.00 | @ | — |

### Pulp
(F. o. b. Mill)

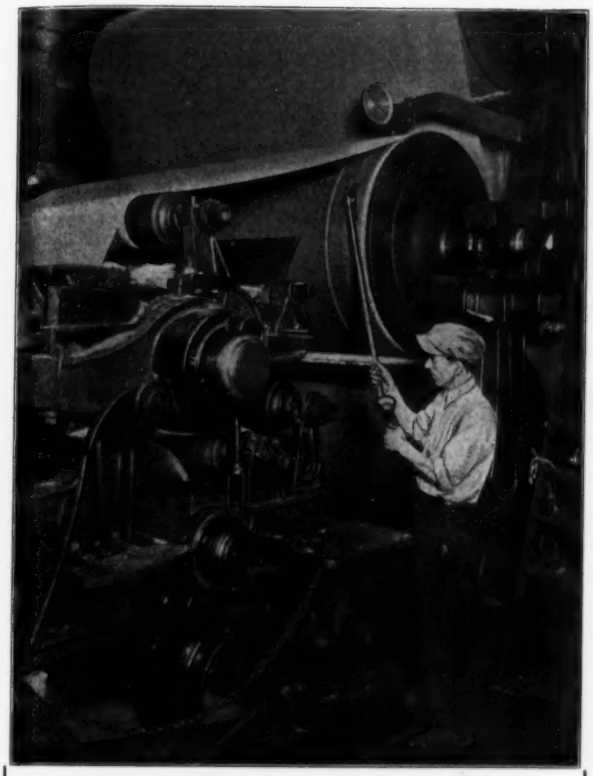
| | | | |
|---|---|---|---|
| **Ground Wood** | 30.00 | @ | 32.00 |
| **Sulphite easy bleaching** | 60.00 | @ | — |
| **Sulphite news grade** | 60.00 | @ | — |
| **Sulphite, bleached** | 72.50 | @ | 75.00 |
| **Sulphate** | 60.00 | @ | — |

### Old Waste Paper
(In carload lots, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| **Shavings—** | | | |
| White Env. Cut | 3.00 | @ | — |
| Soft White Book Shavings | 2.85 | @ | — |
| White Blk. News | 1.60 | @ | — |
| **Book and Ledger—** | | | |
| Flat Magazine and Book Stock (old) | 1.40 | @ | — |
| Light and Crumpled Book Stock | 1.25 | @ | — |
| Ledgers and Writ-Solid Ledgers | 1.50 | @ | — |
| **Manilas—** | | | |
| New Manila Cut | 1.50 | @ | — |
| Printed Manilas | 1.00 | @ | — |
| Kraft | 2.25 | @ | — |
| **News and Scrap—** | | | |
| Strictly Overissue | .85 | @ | — |
| Strictly Folded | .85 | @ | — |
| **No. 1 Mixed Paper** | .65 | @ | — |

### Domestic Rags
(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| **No. 1 White Shirt Cuttings** | .09¼ | @ | .10 |
| **Fancy Shirt Cuttings** | .06 | @ | .06½ |



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ESTABLISHED 1872

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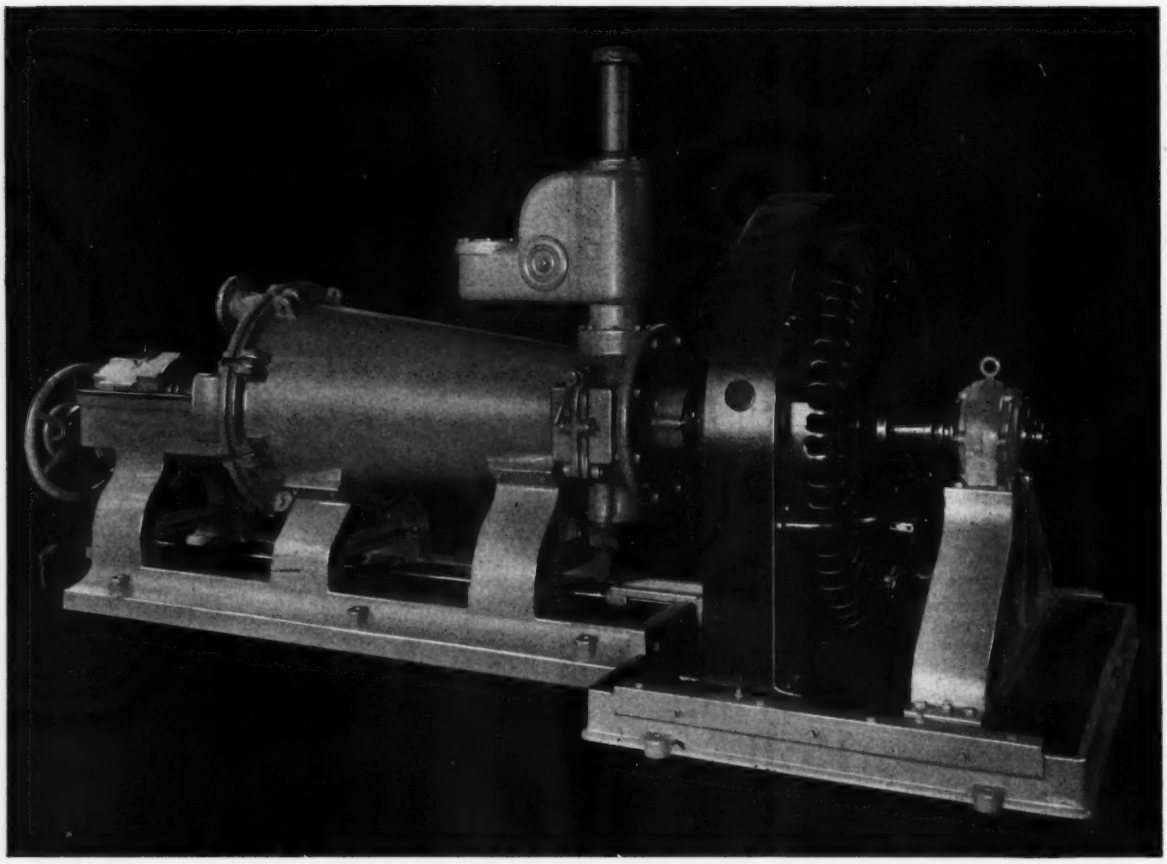

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